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The (Right) Honourable Michael Duffy (left) presents a congratulatory telegram to David VK3ADW, watched by Dick Butler.

SPECIAL FEATURES

Annual Index for 1985 Volume 53 Australian Radio Journals before 1939 by Chris Long Clandestine Hot Water by Reg Glenville VK2ELG . Benjamin Franklin Method by Lindsey Law Inna Loca Atl Bill has a go at RTTY by Ted Holmes VK3DEH

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EDITOR BILL RICE* VK3ABP TECHNICAL EDITORS
PETER GAMBLE
VKSYRP*
PETER GIBSON SVAN JARMAN BVAN JARMAN VK3ANI* DOUG MCARTHUR GR. SONES VK34III

CONTRIBUTING EDI-Jae Ackermen VK4AEX Brenda Edmonds Brenda Edmonda
VKGKT
Marshall Emm VKGFN
Bon Fisher* VKGOM
David Furst VKGVDF
Roy Hartkopf VKJAOH
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1862, by the 23rd day of the secand month perced-ing publication. Note: Some months are a few days earlier due to the way the days full. Watch the space below the Index for deadline dates. Phone: 630 525 500;

WIA News - CISPR

HAMADS should be sent direct to the same address.

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AMATEUR RADIO

Published menshly in the Official Journal by the Wireless Institute of Australia, founded 1910, ISSN 0002 - 6859, Registered Office

Here we are at the close of another year. During 1985, the WIA's 75th Anniversary Year, Amaleur Radio has presented many historical stories. Radio has presented many historical stories, including some special contributions from the Divisions. All in all, it has been an interesting year, and it has partially been interesting for the Old and it has certainly been interesting for the Oli Timers to reminisce, and it has given the younge ramers to rethinisce, and it has given the younger members an insight into some of the difficulties that were faced by the ploneers of amateur radio. ia: were saudd by the proneers or amaleur ratio.

Locator Systems have come to the fore during 1085 and this month's manazine has snothe

rsoo, and this month's magazine has another computer programme to locate your Locator using the VIC-20 series of computers, see page 10.

Reg VK2ELG, a favourite writer with many read VKZCLUs, a favounte writer with many readers for his series of Clandestine articles has put pen-to-paper again. This time Reg describes how he constructed a drink heater element for use of his fellow POWs in Germany see name 14.

A recent happening on the amateur radio scene has been the invaluable assistance it has given to many during the tragic earthquakes in Mexico City. Jim VK3PC, gives a brief discription of the services provided by the Australian Traffic Nat.

page 19.
Chalo Long. former Acting Curator of Electronics at the Museum of Victoria, a 'doyen' of the history
ad electronics, has compiled a history of some of or electronics, has complied a netory of some or the first magazines available to the radio experimenter, page 21. Chris has spent many hours perusing the magazines at the State Library of Victorian, and has managed to obtain some more interesting ones.

pre interesting ones.

December is the time for the publication of the entire index for the year, so turn to page 26 and see if you have missed reading an article of interest, hext month will also feature the Technical Index for the past five years

Season Greetings to all readers!



DEADLINE

All copy for inclusion in the February 1986 issue of Amaseur Radio, including regular columns and Hamads, must arrive at PO Box 300. Canifield South, Vic. 3162, at the latest. by midday, 2nd January 1986.

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algrave, Vic. 3170 4(03) 560 2222

Printers: WAVERLEY OFFSET PUBLISHING GROUP Getides Street, Maigrave, Vir. 3170. This 20 560 511 Mail Processing by: AUTOMAIL PTY LTD Stamford Rosd, akleigh East, Vic. 3166.

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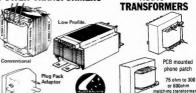
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interested in the art and science of radio. Your copy is available by mail order for \$7.95 plus \$1 to cover postage and handling (add \$5 to these charges for air mail postage outside Australia)

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1985 IN RETROSPECT

As our 75th Anniversary year draws to its close we may recollect several highlights, the most recent being the Anniversary Dinner in November, at Melbourne's Southern Cross Hotel, Very rarely, perhaps never below. have leaders representing so large a proportion of the world's radio amateurs come together under one roof. The combination of our Disness and the LARU Region 3 Conference immediately following it in Auckland, proved to be a powerful attraction to this part of the world for

the leading executives of amateur societies from 15 overseas countries, and all three TTU/ARU Regions. We were incoursed to have as official quests, the Secretary General of the ITU, Mr Richard Butler, and our Australian Minister for Communications, Mr Michael Duffy. During the year we received letters of congratulation on our 75th Anniversary from our sister societies in almost 40 countries, and we can be sure that the WIA, and its standing as the oldest amateur society in

the world, are better known everywhere as a result of our anniversary Throughout the year we have published many items of historics'

interest under the general title of "75th Nostalgia", and those have been received with interest, particularly by the older members. Unfortunately, this has reduced the space available for technical articles, but from now

on the proportion of technical material will be much greater The WIA 75 Award seems to have been very successful, judging by

the lists so far published of those who have qualified for it. Hopefully, even your busy Editor may find time before the end of Docomber to make the remaining contacts needed to total 7S!
Altogether, the work that has been done throughout the year by the
anthusiastic volunteers on the 75th Anniversary Committee and their

helpers in all Divisions has been a great boost to the WIA and to amateur radio in Australia. To round off this most auspicious year, it is now my privilege once again, on behalf of the Publications Committee, and all those involved in

producing this magazine, to wish you all a very Merry Christmas and may 1986 prove to be the happiest of New Years.

Bill Rice VK3ABP Editor



WIA NEW

CISPR The WIA, as a member of the Standards Association of Australia, is concerned with the activities of a number of international standards bodies, including the Special International Committee on Radio Interference (CISPR). Sydney was the recent venue of a major meeting of CISPR Sub-Committees, at which the WIA was represented, both in an

official and social canacity Firstly, some background on CISPR. This is an international committee directly associated with the International Electrotechnical Commission (IEC). It is responsible for the standardisation of Electromagnetic Interference Measurement, and for the recommendation of appropriate standards for the protection of radio services. A number of sub-committees covers such subjects as; Methods of Measurement of Interference, Industrial Scientific and Medical Equipment. Interference from Overhead Power Lines, High Voltage Equipment and Electric

Traction Systems, as well as other well-known sources of RFI problems. All sub-committees of CISPR are of some interest to the amater service, but probably the most important is Sub-Committee E. which deals with the interference characteristics of radio receivers (and associated equipment). The immunity of television receivers, broadcast receivers, audio frequency amplifiers, etc is covered by this sub-committee, and a special working group.

The Australian Standards Association is the accredited point of contact with CISPR, and its Committee TE/3 is the responsible national group for electromagnetic interference. The WIA, through its representation on the TE/3 Committee, is able to monitor international activity in this area, and contribute to the work of SAA, CISPR, and the IEC on a continuing

Since CISPR has its headquarters in Geneva, most of its meetings are held in European countries. It was, therefore, a very special occasion to have a full scale meeting of all sub-committees of CISPR in Sydney during August/September 1985.

Allan Poxcroft VK3AE, WIA Representative on the SAA Committee TE/3, was a member of the Australian delegation to the CISPR meeting.

and attended sessions of Sub-Committee E. The delegation was able to contribute to the proceedings, particularly in respect to methods of measurement of immunity. It was also of significance that quite independent Australian work on the setting of immunity levels was, in many areas, closely in line with those proposed within the CISPR working group. This will finally lead to much-needed Australian standards on the immunity performance of commercial television receivers. AF amplifiers,

The Rederal Executive also took action to contribute financially to a function held at the end of the Conference to farewell international delegates. The function, held in the Board Room of Philips Industries. North Sydney, was jointly sponsored by the Institution of Radio and Electronics Engineers, (WIA's sister organisation), the Institution of Engineers, and the Wireless Institute of Australia.

Pour members of the WIA attended officially - Allan Foxcroft, from Federal Executive, and Peter Jeremy, Tim Mills and Stephen Pall from the New South Wales Division.

The Institute's involvement in the function proved most effective in bringing our organisation, and hobby to the attention of international delegates to CISPR. The WIA's 75th Anniversary celebrations were referred to by a number of speakers, and this led to reminiscences of amateur activities in the welcoming address by the immediate past-President of the IREE, Dr Wing. 75th Anniversary posters, which were on display, were quickly 'souvenired' - and the pity was that we did not have more to distribute The fact that the WIA was probably the senior partner emerging from

the IREE/WIA common origins' was conceded by Mr Ian Shearman, in a iocular fashion, during his address to delegates on behalf of the Electrotechnical Committee of the SAA.

The contacts made, and the publicity gained, for the amateur service, and the WIA in particular, are considered to be of great value, and will undoubtedly facilitate negotiation of the amateur case in the future.

Allan Poxcroft VK3AE

SEASONS GREETINGS









Our 75th Anniversary Year is now drawing to a close and, on hehalf of the Executive. I would like to convey to you all the best of Season's Greetings This year a milestone in amateur radio, has resulted in a close examination being made of the past bistory of the WIA, which, of

course, is intimately connected with the development of amateur radio, in Australia.

In the early days, amateurs took up the challenge of the unknown. They were certainly to the fore-front in advancing technology.

such as the use of shortwaves, during the early 20s. Since those days, there has been a technological explosion, the rate of change being almost exponential

The sophistication, and complexity, of modern frontier research makes it very expensive, and as a consequence, puts it largely out of the range of an individual, and into that of an institution. out of the range of an individual, and miscussion an institution.

However, this does not mean that the individual, who had a place in the past, has lost it. But, by necessity, his, or her contribution perhaps cannot be as great as that made by the individual in the pioneering days.

Because of the diverse nature of radio communications, there will always be a challenge for the individual to advance.

The Amateur Radio Service is a Radio Communications Service, recognised by the International Telecommunications Union. and defined by it as follows:

"Amateur Service: a radio communications service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs. That is - by duly authorised persons interested in radio technique solely with a personal aim, and without pecuniary interest".

This definition is as pertinent now as it has ever been.
It acknowledges that there are individuals to whom there is a desire to become involved in radio communications, just for the

love of it love or it.

It is obviously necessary to regulate the use of the radio frequency spectrum internationally, to avoid chaos. In this regulated spectrum a space has been provided for the Amateur Service.

Because of the diverse nature of the many aspects of developing radio communications, recognition has been made of possible future pende

The Amateur Service, because of its unique status as a radio communications service that is not dedicated to any specific purpose has, in the past, provided communications in many emergency situations, and will continue to do so in the future. It does this at minimal cost to the community.

The Amateur Service, because radio waves do not stop at national borders, is a great ambassador of international spodwill. In conclusion, amateur radio to the individual amateur, is what he or she wishes to make it.

There is a place for all, no matter what their special interests may be.

Remember, we are all amateurs because we want to be, not because we have to be.

David Wardlaw VK3ADW FEDERAL PRESIDENT

DECEMBER 1985

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SUN	MON	TUE	WED	THU	FRI	SAT
I Advent Sunday	2	3	Three weeks to Christman	5 Thelland National	6 * Finished Independance Day 1917	7 ARRL 160m Control
8 Hannikaak ARRI. 160m Contest	9	10 * Christmas Soci	11	12 " VET School Breakup	13 WK4 School Breakup VK1 School Breakup	14 ARRL IOn Contest Ross Hall VHF Contest Begins
15 ARRI 19th Contest	16 * Anniversary Day: Canterbury ZL	17	18 * VK8 School Breakup	19 " VE3 School Breakup " VE7 School Breakup	20 × VK5 School Breakup	21
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IA Seventy Vifth Anniversary



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75 AWARD RECIPIENTS

Following are the names, and call signs of recipients 201 to 372 of the WIA 75 Award. Ori Siegel VE/SWL

Karl Luckhart W9YWX 202 203 Keith Champlin W0MCY 204 Bob Carter W7INP George Burgess VK5NGB E J Wissemann VK4ADA... 205 206 Eddy Antony YB8AY 207 Murray Jones VK5BVJ .. Dick McKercher W0MLY 208 200 Graeme Harris VK3BGH Ismael Perez EA5DHE... John Hannan KASRAC Ralph Ernstein W6SPQ Kaneaki Miyamoto JA1UZQ 214 Thomas Dorset WB4J... 215 Ivan Searle VK5NSI 218 William Hestop ZL1LU 218 Wal Sullivan VK3C Robyn Robb ZL1BXR 219 220 George Brzostowski VK1GB Brent Burnett KL7KJ John Heys G3BDO 225

Mike Groth VK5AMG Joe Ackerman VK4AIX Abet Suhaian YB4FNN Frank Chapel Jr K9PSN Ivan McEwan ZL/SWL. Steve Allen W6TGI John Gash VK4KCX Arlo Myers WABUDA Alan Foulstone VK3VAF

Mukoyasu Niijima JL1BBD David Paperman WB5IN M L Dickinson VK3GZ 228 229 230 234 Gerald Hill KH6HU. 238 Davys Baldwin VK7DS William Fleming WASCXX Brian Adams G4REV ... Elbert Wood W4JFL.... 240 Fred Reid VK7FD Alfred Johnson W8RHG Reg Cooke VK2DJJ Robert Garbe FK8AH 244 Gary McCrorey AL7BI 245 Dale Loffler VK5BOK 246 Ray Nolan VK6NRN Dmitri Perno VK4BDP 248 Chas Orr VK2CO 249 P D Neilson ZL2Q1 lob Walter VK6RG 251 M Shiono JM3CNH/MM 252 Leon Reichelt VK3NLR K Vriens VK3AFI Bernie Maier WB3DWH

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H E Sporrer VK2DUO 322 J W Little W6AC 323 Jim Henderson K6JAD 325 D J Reed N6LEC 326 Lucky Henderson W6KON Alberto Guarino YV2BYT... Mike Maynard KJ4FZ 328 John Smetona K3SI Harry Fillager KB8XC 330 George Smith K7OZ Paul Staton KD5DR 332 Martin Hutchings VK2VMH Phillip Connoly VK2JPC..... 333 Tony D'Anastasi VK2P2 335 John Kelleher VK3DP 336 Maurice Bartley VK4SK David Long VK3BY Robert Farkaly K9RHY 338 339 Hisayuki Kuroda JK3EVV 340 G A Devonshire VK4BGA 341 Dave Fowler G4YWG. 342 343 R D Dew VK1NUB 344 Bron Brown VK3NTD 345 H Fietz VK7NFH J Hodkinson VK2BHO 347 Akio Okuda JF3BNN 348 Frank Vella VK2VF Steve Curtis VK3CAX Tony Mullen VK2BAM Ian Callcott VK2EXN ... D A Thornley VK5NOD 351 Sam Gillgren ZL1AOE 353 Owen Langham VK7O 354 Allan Doble VK3AMD 355 Steven Forney NODMT 356 357 Tony Smaker Jr. KL 358 Ronald Hutapea YC8PF John Tracey VK4BTJ. 359 360 Allen Hart N7FYU Bill Drumond KG8UA 361 362 363 Jim White N6JYG Ken Hurrell G3NB

Dave Robinson ZL2BJI

Nancy Robinson KC4IK

Gordon Welsh VK5KGS

Tatsuo Saito JE7GGF

Teruko Saito JE7KCI

Adelaide Hill ARS VK5BAR

Val Quinn KG6TI



WIA CW CONTEST PRESENTATION



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The President's Cup and a Morse key, donated by William Willis, were presented to the winner of the 1985 WIA CW Contest at the Oxley Region Amateur Radio Club's Annual Field Day, 1985. The winner was Oxley Club Member Peter Alexander VK2PA

ARKANGEV N.2.P.A.
The Club was honoured by the presence of Peter Jeremy VKZPJ, Jeff Pages VKZBYY, and Tim Mills VKZZTM, members of the NSW WIA Executive, who journeyed to Port Macquarie for the presentation and Field Day. Peter VKZPJ, congratulated Peter VKZPA, on

his great performance, after giving those in attendance a brief history of the President's Cup. Peter also expressed the appreciation of the WIA NSW Division for VK2PA bringing the Cup to New South Wales.

Monte 'Bon' Stark KU7's

Mark Jeffrey VK3PUC

B Homquist VK2PQT

Max Temple VK7NAX

Jock Fisher VK1LF

The were approximately 150 visitors and club members present at the presentation, and the applause was dealening when Peter responded. He said it was quite an emotional win for him as he considered it to be a most prestigous event to capture. More so, because of the history attached to the Cup, added to 1985 being the 75th to the Cup, added to 1985 being the 75th Anniversary Year. Offers came from members to help him keep the Cup 'polished'. Peter threw down the challenge that he will hold the Cup for 1996, against all-comers!

KEY TROPHY

Gianni Santangelo IBSAT

Stan Pemberton VK2S

Wayne Smith VK2PWS J F Costa VK3DKR

Osamu Hiroba JH3SUV

Junko Okuda JI3FBW

William Helwig WK4F Kenton Dean NK6F/VK8KD

Peter Balnaves

At a special Club Dinner Night, members of the Club gathered to once again congratulate Peter VK2PA, as he received a specially mounted Morse key, very kindly provided by William Willis and Company Pty Ltd.

Club President, Keith VK2KOL spoke highly of Peter's dedication to amateur radio spanning some 45 years. In particular, Kelth referred to Peter's long years of recognition in the CW field of amateur radio.

Peter responded by thanking the thoughtfulness of the management of William Willis for depeting such a fine trophy, as a back- up to the President's

AMATEUR RADIO, December 1985-Page 7

Cup for 1985. He said it will go into 'operation' and will hold pride of place in his home.

Peter had 722 contacts in the recent 24 hour VK-ZL Peter had 722 contacts in the recent 24 hour VN-ZL. Copania Contest: an average of around 30 contacts per hour. All contacts were fully signed and took place on the 80, 40, 20, and 15 metre bands. Approximately 400 contacts were on 40 metres, and included 195 prefixes. A fruly commendable affort again, Peter Controllar by Lester O'Cornet VN-ZBPP. Club Secretary



Region ARC President. VK2KDL, presents the President's Cup to Peter VK2PA, winner of the WIA CW Contest



Peter VK2PA proudly displays the President's CW Cup which was presented to him at the Annual Field Day of the Oxley Region



The Morse Key Trophy presented on behalf of William Willis to the winner of the WIA CW



ELECTRONIC VOLTAGE REDUCERS

See Review on page 25. September AR.

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SCHOOL BEGINS

The Australian Film and Television School began a 35-week training programme for SBS radio co-ordinators and broadcasters in Melbourne (21st October), and Sydney (28th October). The project is aimed at enhancing the growth of quality ethnic broadcasting in Australia, and will

un until August 1986.

For more information contact the Course Co-ordinator Joan Sharry (D2) 987 1666, or the Assistant Co-ordinator Georgina Guilloyle (03) 328

Contributed by Sandy George, Publicity/Information Officer

Touch of a Master's Hand". Peter VK2PA tests the key presented to him for his winning entry in the WIA CW Contest.

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SAFE TUNE-UP WITH THE FT-7

Bruce Dovle VK6ARD DO Dow 95 Tourt U. I. WA GOED

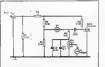
A discussion with a follow amateur, Ross VK6DA, on the problems encountered when using transceivers with solid state finals in conjunction with an ATU, resulted in an article being resurrected from Ross's collection of Rad Com Journals, on an ATLL pre match unit that always presents approximately 50 ohms to the transceiver, while adjustments are made to the ATLL

The art c.e may be of interest to operators of so it state and valve transceivers alike, as the unit described also a lows tuning of a transceiver into the antenna without any unwelcome cattlers being transmitted into our a ready crowded bands.
The original Linit design had the operator physically unplugging the unit from the transmisson line to be able to conduct a OSO, but by incorporating a three pole/four way rotary switch

(wired as in Figure 3), the Lin t may be hullt either as a separate unit or into the ATI I and left in line I have tested the unit using both a TS-8305 and T5-430S and have been able to tune a portable 80 metr helica dipole without the stations that I have wished to work know he that , had tuned up on the frequency that they were operating on. The following is the article, written by Les May
G4HHS which appeared in Radio Communication, August 1981, page 715.

When the author's HW100 was replaced by an FT-7. no nart cu ar antenna matching problem was envisaged, as the half-size GSRV could be matched on 3.5 to 21MHz with the E-Zee Match in use However, conversations with other operators indicated that the longevity of the transistors in modern sol distate nower amplifiers was a matter of some concern, whether they were used operating valve power amplifiers is a poorly matched condition was not clear What was well known was that the FT-7 and TS-120V transceivers must be operated with an output VSWR of less

than 1.5.1



Provided a suitably tuned matching device is used this does not present any problem. The pro-cedure normally adopted with the FT7 is to tuneup into a dummy load, and then to replace the dummy load with the E-Zee Match pretuned to the positions previous videtermined and logged when the HW 100 was in use. By pretuning the matching unit the instantaneous VSWR is always low enough for safety, and the possibility of a serious mismatch (which can occur during tuneup) is avoided. The requirements to pretune the antenna or ATU is stressed in the FT-7 manual. A major attraction of a compact lightweight rig is the opportunity it affords for mobile and portable operation, yet the pretuning requirements may act as something of a deterrent

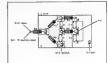
When a demonstration station was set up using a new y made G5RV antenna at the author's school, it was not possible to pretune the mat

ching unit, and it was quickly realised that the instantaneous VSWR during the tune-up process was unaccentably high Adjusting for maximum noise on receive was simply not good enough What was required was a device which allowed the FT-7 always to 'see' 50 ohms while the antenno or ATLL was being adjusted however serious the instantaneous mismatch. A little reading and some thought produced the device shown in Figure 1, which was suggested by W Hayward and radio amateur

The mode of operation may be understood by dividing the diagram at the dotted line. To the left R1 is a dummy load able to dissipate the nitriul. nower of the transceiver It is shunted by eventhing to the right made up of R2 and the offertup roustance of R3 R4 and R5 together with the unmatribed reactance of the antenna or ATU. It will be seen that whatever the condition at the output the shunting resistance will always exceed 1 000 ohms. A parallel combination of 50 ohms and 1,000 ohms resus in the load 'seen' by the transceiver being about 48 ohms, which is near enough to 50 ohms to be of no consequence

The matching process itself is monitored by the RF bridge formed by R3, R4 and R5 and the outout to the ATLL Recause the three resistors are all 51 ohms the bridge is balanced when the ATU presents a nure resistance of 51 phms. D1. C1. and the meter form an RF detector to sense the balance noint: when the meter reads zero the hodge is balanced. Loading by the meter is reduced by R6 and RF is bypassed by C2 and C3. A sensitivity control was fitted but found to be unnecessary with the FT-7, as explained later. Some rough calculations suggested that R2 might need to be reduced to 500 ohms and that a diode with

low turn on voltage would be required. Because only a null reading, not a measurement is decired the meter does not have to be very special, a meter of the type to be found in portable cassette recorders will do provided it is no less sensitive than 100.4



The layout of the bridge should be as sym metrical as possible, and a PCB lavoist sloven in Figure 2. Recause the hoard is symmetrical the innut and output sides can be interchanged to sull the particular operator's convenience. Part of the board must be connected to the case by a thick ware and a short length of desp der og braid 5 convenient. The 'works' fit comfortably into a 15 by 8 by 5cm diecast box. This is heavy enough to ensure the unit sits still on the bench, leaving both hands free for tuning up. The board is selfsupporting on the input and output wires to the bridge After wiring up and checking for shorts, the unit can be tested

With a dummy load fitted to SKT the input to SK2. SK3 not connected to ensure max mum mismatch), and RV1 at minimum, power can be applied to the unit via an in-line VSWR bridge

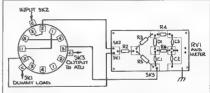


Figure 3 — Modifications and Tune up Procedure with the addition of the three pole, four position switch.

1 Function Switch . . . Dummy Load; Tune Transceiver if applicable. 2 Function Switch . . . Meter Set; Key down Transceiver, set meter for full scale deflection with a 10 kohm linear pot. 3 Function Switch . . . ATU preset; Key down transceiver, adjust ATL until preset null meter

4 Function Switch . . . Antenna Only; Check inline SWR meter. If necessary touchup ATU.

If all is well in-line reflected power will be zero. The sensitivity control should be rotated until the meter reads full scale. If FSD cannot be obtained. R2 can be reduced but should not be less than 500 ohms. In practice, it does not matter if the meter reads a little less than full scale, and RV1 can be preset or left out entirely in this case. When the ATU is connected, the meter reading should fall a little. By adjustment, the match can be improved until the reading is zero, and no move ment should be perceptible when the transmitter is keyed on and off. Some care is needed to ensure that the reading obtained is zero, as this ndicates that the antenna is very well matched. When the antenna or ATU is connected to the output of the in-line bridge, the match will be found to be very close to the best obtainable with the ATL and antenna in use.

the ATU and antenna in use. The unit described eliminates the possibility of an unintentional bad mismatch during antenna adjustment and, as a borrus, reduces the annoyance to other band users caused by continuous carrier being radiated during adjustment of the ATU. Very little RF reaches the antenna.

MODIFICATION BY VK6ABD

The addition of a three pole, four position rotary switch, will allow the unit to remain in line during normal operating conditions.

ROBBERY

Recently, Greg Whiter, of GFS Electronic Imports, was confronted by armed bands, who escaped with \$22 000 worth of electrical equipment, plus an amount of cash. Next month, we hope to publish a comprehensive liet of the serial numbers of the equipment stolen, in the hope of recovering the same.



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IARU LOCATORS

M O'Hare VK2ZQD 75 Strius Street, Ruse, NSW, 2560

18 REM 2.1.VIC-28 EXPANDED, IARU LOCATORS

28 PORESSETS, BIDINTX(6): PRINTICHES(5): PRINTICHES(147): PRINT LOCATOR PROGRAM*
38 PRINT = ELECTRIC PRINTIPRINT VIC VERSION BY VKZZQD*: FORT=170156
6:NEXTT

SEP PRINTCHREG(47):PRINTTHIS PRODRAM MILLI-TYRG(41)*(1) DETERMINE (ARU150 PRINT" LOCATORS FROM MMP REFERENCES*IPRINTIPRINT*(2) DETERMINE
E MMP

REFERENCES FROM JARGUCGATOR*IPRINTIPRINT*(3) DETERMINE
LOBO PRINT" REFERENCES FROM JARGUCGATOR*IPRINTIPRINT*(3) DETERMINE

BEAM"

128 PRINT" MEADINGS AND DISTANCES FROM MAP REFERENCES": IPRIN

T

148 PRINT"PRESS: (1), (2) OR (3) AND RETURN TO SELECT DESIRCO*

138 PRINT" FRCLITY FPRINT PRINT PRESS (4) AND RETURN 1 INPUT TO END 1

178 IFA<800T0188

1888 PRINTCHRE(147) "MMP REFERENCE TO IARU"TAB(44) "LOCATOR" 1818 PRINT"LATITUDE DED MIN.NS" PRINTLIMPUTDAL, MAL, NSS 1828 IEDAL (80RDAL) 1980KHML (80KHML) - SED TAKN 1888

1838 IFNS#()"M"ANDMS#()"S"THEN1886 1848 PRINT:PRINT:LONGITUDE DEJMIN,EM":PRINT:INPUTDOL,MOL,EM8 1858 IFDOL:800RDU_1880RDUL(800RMUL)=68THEN1846

1858 | FDOL-80RDOL-) | 980RMOL-9-68THEN1848 | 1868 | FEBRS-YE-MADEMBS-Y-W-THEN1848 | 1878 | LO-800L-MDL-88

1100 IFEMS="E"THENEO-180+LO 1110 IFEMS="H"THENEO-100-LO 1120 LA-DAL-49L-/60 1130 LENGS="H"THENEO-100-LO

1138 IPNS*"S"THENLA=88-LA 1158 CS="MBCDEFSHIJKLM-DPORSTUMMK":CILO=[NT(LO/28)+(ICIS=MIDS(CS,CILO,I)

1178 CBLA=1NT(LA/18)+[1C28=MID8(CB,CBLA,[):C3=INT(LO/E):ISOTD1188 1188 CBLA=18

1186 C3*C3-10 1196 1FC3>*16TMEN1188 1288 C4*INT(LA):60T01228

1218 C4+C4-18 1228 1FC4>=18THEN1218 1238 C5L0-L0/2-1NT(L0/2)=C5L0=INT(C5L0s24)+(+C5s+M1Ds(Cs.C5L0,1)

1248 CBLA-LA-INTCLA):CBLA-ENTCREARSEA-)-ICES-WIDECCS,CBLA, 1):PRINT 1258 PRINT"MPP REFERENCE TRE-CES-DOMLINMA, NEW, DOLLING, JELBEYPRINT 1258 PRINT"IARU LOCATOR "TRE-CES-DOMLINMA, NEW, DOLLING, JELBEYPRINT 1258 PRINT"IARU LOCATOR "TRE-CES-DOMLINMA, NEW, DOLLING, JELBEYPRINT

THE PRINTINGS SETUDIN TO SELECT INS" : INFUTNICIONALS SETUDINALS S

2818 FFLENCLS)(>STHENEOSS 2828 FORJ*(TD6:TX:ASC(MID6(L6,J,1)>:LX:ASC(MID6(*AA88AA*,J,1)):TX(J)=TX:-LX 2838 HX:ASC(MID6(*RESSOR*,J,1)):UX:HX:-TX:IFTX(J)<60RUX(6THENESSS

2838 HX-MSC (MIDM*("RESSOC",J,;)) 1) 1UX-HX-TX: NFTX(J) (400RUX:8THE:ME888 2848 NEXTJ:EN=TX:(J)=28+TX:(J)=28+TX:(S)-12+NS=TX:(2)+18+TX:(4)+TX:(6)/24 EXECUTIVE (EXECUTIVE TEXTILITY (EXECUTIVE TEXTILITY (EXECUTIVE TEXTILITY (EXECUTIVE TEXTILITY TEXTILITY TEXTILITY (EXECUTIVE TEXTILITY TEXTILITY TEXTILITY TEXTILITY (EXECUTIVE TEXTILITY TEXTILI

2000 IFNG)=98THENDAL=INT(NS)-98:NS#="N" 2100 IFNG(98THENDAL=INT(98-NS):NS#="S"

#1800 JFRS(90THENDAL*INT(30-NS):NSS*'S*
1300 MR-*INT((NS-INT(NS):NSB*):PRINT:PRINT*(ARU LOCATOR:*TAB(53)L6:PRINT
2288 PRINT*MAP REFERENCE:*TAB(44)DAL;MAL;MSS.DOL;MAL;ELM:PRINT
2288 PRINT*MAP REFERENCE:*TAB(44)DAL;MAL;MSS.DOL;MAL;ELM:PRINT

288 PRINT WAP REFERENCE: "TAB (44) DAL; NBL; NBS, DOL; NDL; EMS: PRINT 22:10 PRINT PRESS RETURN TO SELECT: AS-": IN-PUTME ED 70:10 S 3800 PRINT PRESS RETURN TO SELECT: AS-": IN-PUTME ED 70:10 S 3800 PRINT PRESS RETURN TO SELECT AS-"SUPPLY SERVING TAB (44) "SDURCE STATION"

3816 PRINT:PRINT*LATITUDE DE6,MIN,NS*:PRINT: INPUTS1,62,SNS\$
3828 IFS1:00081390052400825-908THEN3080
3838 IFSNS8()*S*ANDSNS8()*N*THEN3080

3848 PRINTPRINTPLONGITUDE DEG, MIN, EM*:PRINT: INPUTES, S4, SEMS

3809 IFS3(80RS3) IBBORS4(40RS4)-68THENS948
3808 IFSSM(c)"("ANDSSM(c)"M"THENS948
3878 PERMIT-PRINT/DESTINATION STATION"

3858 PRINT:PRINT'ASTITUCE DEG,MIN,MS":PRINT: |MPUTD1,D2,DMS# 3859 1F01:886017980RD200RD27-88THE/3878 2169 1FD1:886017980RD200RD27-88THE/3878

3100 IFDNS\$()"N"ANDONS\$()"S"THEN3870
3130 PRINT:PRINT"LONGITUDE DEG,MIN,EM"(PRINT)INPUTD3,D4,DEW\$
3130 PRINT:PRINT"LONGITUDE DEG,MIN,EM"(PRINT)INPUTD3,D4,DEW\$

3128 1FDS(80RD3)1880RD4(80RD4)+68THEN3118 3138 1FDEN#(>*E*ANDEN#(>*H*THEN3118

3148 SS=((S1+S2/68)#4)/198:SE=((S3+S4/68)#4)/198 3158 D5=((D1+D2/68)#4)/198:D6=((D3+D4/68)#4)/198 3168 IFS5)#ORS6)2##DRD5)#ORD6)2##TEN8988

3178 IFSNS#-"S"THENSS--SS 3188 IFSEN#-"E"THENSS--SS 3198 IFDNS#-"8"THENDS--OS

3280 IFDEMS*E*THENDS*-DS 3210 DEFFNR(X)=4/2-ATN(X/SDR(1-K+X))1X+SIN(S5)+SIN(D5)+CDS(S5)+CDS(D5)+CDS(D8-S6 I had thought of writing this article after reading the articles by Harold Hepburn VK3AFQ, in the May and June issues of Amateur Radio. thinking that the programme could be con-verted for use on a VIC-20, and improved.

This programme will run on a standard VIC-20, VIC-20 with memory expansion, or the C-64.

To run the programme on a standard VIC-20 it must be slightly shortened. This can be done by removing input validation, though this requires that care must be taken to input only valid values, and in the correct order

The lines to be deleted are: 1020; 1030; 1050; 1060, 2010, 2030; 3020; 3030, 3050; 3060: 3090, 3100: 3120, 3130; and 3230 To run the programme on a C-64, it is ecessary to delete POKE 36879,8 from line

20, and insert a new line - 15 POKE 53280.4 = POKE 53281,0. The screen layout of a C-54 is different to that of a VIG-20, having 40 rather than 22 characters across the screen. This means that the displays could do with a tidy up for use on a

The programme starts by clearing the screen and setting it to black, with white characters. A title block appears and is followed by a menu from which the desired function is chosen. if any character, other than one of those listed is chosen the menu will reappear.

SELECTION 1

The programme goes to step 1000, and dis-plays 'MAP REFERENCE TO IARU LO-CATOR'. The Latitude and Longitude are asked for, then checked for validity when given.
If a value is not valid, the Latitude and Longitude is asked for again.

SEER IF (1 X+X)=CRTHENDORS

3238 I=FNB(X):SP=INT((Is188/a):111.19):LP=INT((2:as6367.45)-SP) 3248 IFS IN(1) #CDS(65) = 8THEN3888

3258 X=(SIN(05) (SIN(S5)+CDS(I)))/(SIN(I)+CDS(S5)):IF(I-X+X)+(8THEN9888 2008 N-CM0(V)

3278 JESTN(DS-SS)>+8THENH=244-H 3288 BSP=INT(Hs188/4)

3298 IFHCATHENBLP=BSP+188 3388 IFH\z4THFNRLP#RSP-188

3318 PRINTCHR#(147); "SOURCE STATION" TAB (44)S1; S2; SNS\$, S3; S4; SEW# 3329 PRINTIPRINT*DESTINATION STATION*TAB(44)01/D2/ONS#.D3/D4/DEW

3338 PRINT:PRINT "SHORT PATH: "TAB(44)SP; "KM", BSP; "DEG" 3348 PRINT: PRINT*LONG PATH : TAB(44)LP) "KM", BLP; "DEG"

3358 PRINT:PRINT PRESS RETURN TO SELECT ": AS" ": INPUTAS: GOTO: 68 4000 PRINTCHR\$(147)"END":END

READY. The Locator is then calculated and values

assigned, using string handling to cut down on typing. Output restates the Map Reference for verification, and the IARU Locator is given
To return to the menu, press 'RETURN', or if the desired function is known, then input the relevant number and press "RETURN"

SELECTION 2

The programme goes to step 2000 and dis-plays 'IARU LOCATOR TO MAP REFER-ENCE'. The Locator is asked for, then checked for validity when given.

If the Locator given is not valid it is asked for The Map Reference is then calculated. Out-

out restates the Locator for verification, and the Map Reference is given. To return to the menu press 'RETURN', or if the desired function is known, then input the relevant number, and press 'RETURN'.

SELECTION 3 The programme goes to step 3000 and displays 'DISTANCE AND HEADING'. The Latitude and Longitude of the source station and then the Latitude and Long-tude of the destination station are asked for

The values given are checked for validity. and If any value is not valid, it is asked for The Distance and Heading for both Short Path and Long Path are calculated using the

Great Circle formulae The screen is cleared for putput, then the Map References are restated for verification, and the Short Path Distance and Heading, then the Long Path Distance and Heading are

To return to the menu press 'RETURN', or if the desired function is known, then input the relevant number and press 'RETURN'.

SELECTION 4

The programme goes to step 4000, clears the screen, and ends the programme.

LOADING UP ON

1.8 MEGAHERTZ

Lloyd Butler VK5BR 18 Ottawa Avenue, Panorama SA 5041

How does your transmitter load on 1.8MHz? Here are a few ideas on how to match into that odd length of wire on our lowest

INTRODUCTION

As amateurs, most of us are restricted to an antenna system which must fit into a standard house block If we venture down to the medium frequency band on 1.8MHz, we are usually restricted to operating with whatever length of wire we can manage, connected with an earth or counterpoise system. Such a system, perticularly if the wire is less than an electrical quarter wavelength, leads to a number of problems in coupling to the transmitter

frequency band.

ANTENNA EFFICIENCY



Figure 1 - Equivalent Antenna Electrical Circuit

efficiency Referring to Figure 1, the antenna resistance (Ra) is the sum of radiation resistance (Rr) and the loss resistance (RI) in the antenna system Loss resistance is the result of a number of factors including leakage loss across insulators, the AC resistance of the antenna conductors and, most significant of all the earth resistance. Also, not to be overlooked is the additional loss resistance of any loading inductance used in matching to the transmitter. Antenna efficiency is calculated as follows.

The first problem is one of antenna

EFFICIENCY = 100 Rr RI + Br

Referring to the curve. Figure 2, radiation resistance falls rapidly as the antenna length is reduced, also reducing efficiency because a greater proportion of power is being absorbed in the loss resistance

If antenna efficiency is to be optimised, the antenna should be as long as possible and earth resistance kept low, particularly if the

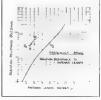


Figure 2 - Radiation Resistance Vs Antenna Length

antenna is shorter than a quarter wavelength Wired radials, counterpoise or earth mat, are of value in reducing earth resistance

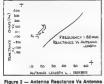
AMATEUR RADIO, December 1985-Page 17

Loss resistance can be checked by first measuring the antenna constants Ra (antenna resistance) and Xa (antenna reactance) with an impedance bridge. The measurements can be carried out guite well with the familiar noise bridge, used by many amateurs. If the bridge is calibrated directly in reactance at one frequencv. do not overlook correction for 1.8MHz

Now refer to Figure 2 to obtain the nominal radiation resistance (Rr) for the length of antenna in use Subtract this value from Ra and the result is loss resistance (RI). Antenna efficiency can be now calculated from the previous for mula If antenna efficiency is low, consideration might be given to improving the earth or in-creasing the antenna length. The constant Xa obtained will be considered later in the text.

ANTENNA MATCHING

The second problem concerns the correct matching between the transmitter and antenna. Most modern transceivers are designed to operate into a 50 ohm resistance load and do not tolerate much divergence from that impedance The anienna, however, has resistive and reactive components which vary with length. The resistance component has already been discussed. A typical example of the read tive component (Xa) varying as a function of length is shown in Figure 3



Attempts to match the antenna to the transmitter using the typical antenna tuning unit (ATU) might not prove successful because of insufficient range in the ATU tuning capacitors At 1 8MHz, loading capacitance needed could be in the nano-farad regions, 1nF =

1000pF

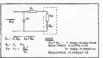


Figure 4 — Loading Circuit Ra (Rp Loading can be better achieved by a network of fixed reactive components selected to form a correct match. To design a network, the antenna resistance (Re) and the antenna reactance (Xa) must be first measured with the improceed as follows
If Ra is less than the desired load resistance

(Rp) at the transmitter, use the circuit of Figure 4 and calculate thus

Reactance XI = V(Rp - Ra) Ra Calculate the series reactance $Xt = Xt \cdot Xa$ Note that if Xa is capacitive, its sign is negative and therefore its value is added to Xi.

If the resultant Xt is positive, Xt is inductive. If the resultant Xt is negative, Xt is capacitive iii. Calculate the shunt capacitance (Xs) Xs = Xi + Ra²

If Ra is greater than the desired load resistance (Rp), use the circuit of Figure 5 and calculate

i. Series reactance Xi = -XII That is - if Xa is inductive, Xi is made an equal

value of capacitive reactance. il Xa is capacitive. Xi is made an equal value of inductive reactance ii. Calculate shunt capacitive reactance (Xs)

iii. Calculate series inductance (XI)

Xt = Xs Re² Ra2 + Xs2



Figure 5 — Loading Circuit Ra > Rp
Fixed capacitance and inductance val are now calculated from the standard formulae:



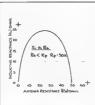
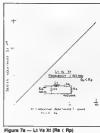


Figure 6 — Xi Vs Ra (Ra (Rp)
Taking the calculation further, specifically for 1.8MHz, we have worked out curves of network components assuming a transmitter load of 50 ohms. These curves can be used as follows:





If Ra is less than 50 ohms, use the following procedure Refer to Figure 6 to obtain the value of Xi

If Xa is capacitive, add its value to Xi to obtain XI, an inductive reactance iii. If Xe is inductive, subtract its value from Xi

If the result (Xt) is positive. Xt is inductive If the result (Xt) is negative, Xt is capacitive iv. Now find the value of series inductance (Lt) or series capacitance (Ct) from Xt in Figures 7a or 7b respectively

v Finally, refer to Figure 8 to obtain the value of shunt capacitance (Cs)

If Ra is greater than 50 ohms, use the follow-

ing procedure.
i. Refer to Figure 9 to obtain the value of series inductance (Lt) and shunt capacitance (Cs)

ii. If Xa is inductive, a series capacitor (Ci) is required and its value is selected from Figure iii. If Xa is capacitive, a series inductance (4) is required and its value is selected from Figure

10b NETWORK COMPONENTS

The network capacitors should have suffi-



Floure 8 - Ra (Rn. Shunt Capacitance Vs. Antenna Resistance (Re)



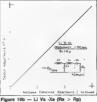
Figure 9 - Lt and Cs Vs Ra (Ra > Ro)



Figure 10a - Ci Vs Xa (Ra > Rp)

cient voltage and current rating. A power of voltage of 200 at a current of 200 V divided by its reactance. A good quality in ca capacitor or a large air dielectric tuning capacitor could be suitable

The series inductor should be made to have a high Q Its loss resistance causes further nower loss and if sufficient in value, compared to the antenna res stance (Ra), its value should be added to a licalculations involving Ra. Net work calculated values should then be reassessed To check the inductance and loss resistance the noise bridge can again be of licad



TESTS

If everything has worked out right, the input of the network should look like a resistance equal to Rp (50 ohms) with negligible reactive component. This can be checked by the further use of our valuable noise bridge. If Ro value is correct, our transmitter can be connected and we are ready to transmit

At this point, with the aid of an RF ammeter and the measured values of Ra and Ro, we can check our matching efficiency. Connect the RF ammeter in series with the transmitter output and, with the transmitter on tune, record the current (it). Reconnect the RF ammeter in senes with the antenna and for the same transmetter setting, record antenna current (la)

Transmitter power output is equal to it Ro and radiated power is equal to la Ri Efficiency of the matching network is calculated as

taken from Figure 2 and based on antenna length. Its value for a given length could vary with other physical features of the antenna.

TRANSMISSION LINE

Previous discussion has assumed that the transmitter is connected directly to the antenna tuning network within the radio shack. A disadvantage in doing this is that high RF current flows in the antenna and earth conductors within the shack, causing a high local RF field Apart from its nuisance value, considerable radiated power could be wasted in absorption in the building structure To eliminate this problem, one might choose

to place the tuning network external to the shack, directly between the antenna wire and earth or counterpoise and feed via a transmission line, such as a 50 ohm coaxial cable



A point worth noting is that you should not net too concerned at poor stand no wave rat o get too concerned at poor standing wave at a (SWR) on the line at this frequency (1 8MHz) The loss in coaxial cable at 1 AMHz is cuite low and even for an SWB of as high as 3.1, the net loss is a fraction of a dB per 100 feet of the transmitter loading is satisfactory, precise SWR can be ignored

In conclusion, it can be said that power radiated might not mean power in the direction you would I ke it to go and that is another subhere will be of some here with those load no problems

APPENDIX I Expansion of Figure 4 Put Xi = Xt + Xa

Hence R+(X) is equive ent to a parallel network Ra2 + Yi2

Resistance component Rp =



Aa.

....(1)

 $Xi^2 = \frac{R_0Ra - R}{4R_0Ra - R}$... (3) Xs is made resonant with Xi and Xs ... (4) = -X2

From (2) and (3) Yo -- (Ra2 + XI2) Xs #

X + Rat (capacitive) (5) APPENDIX 2

Expansion of Figure 5

Xa is cancelled by making Xi = Xa leaving Xs in parallel with Ra

impedance: (XsRa -¡XsRa (Ra + Xs) Ra - ¡Xs Ba2 + Xs2

- RaXs2 - IXsRa2 Ro2 + Ye2 The resistance component Rp = RaXs

hence RaXs2 = RoRa2 + RoXs2 RaXs2 - RpXs2 = RpRs2

X82 =

and Xs =

RoRe² Ra-Ro

RpRa² √Ra-Ro From (1), the reactive component X2 =

-iXsRa² Ra2 + Xs2 Xt is made resonant with X2, i.e. Xt = -X2

hence Xt = IXsRa2

Rath Yes

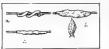
. ..(2)



The following technique can be used for soldering two wires together without using a soldering from that can be used, for example, hen repairing outside antennas

The requirements are: a short piece of aluminium foil, and a box of matches or a cigarette lighter. The procedure as shown in figure 1 is: (a) clean the wire ends, twist them together, and then wrap a short length of cored solder round them; (b) cover the whole with several layers of foil, close up the ends, and place a lighted match or lighter flame under the wrapped joint and move it slowly backwards and forwards, (c) allow a few seconds for the joint to cool, remove the foll and "surprise yourself with a perfectly soldered joint' real secret to success in this procedure lies in wrapping the foil on as tightly as possible with no air holes. The foil conducts heat to the joint as well as preventing oxidisation and the formation of soot on the joint, It also stops the molten solder from running away

Contributed by Ron Cook VKSAFW, from Red Comm July



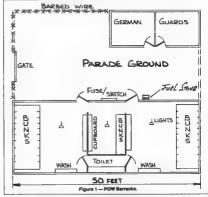
CLANDESTINE HOT

Reg Glanville VK2ELG

63 Buffalo Cresent, Thurgoona, NSW. 2640

Since the publication of the two "Clandestine" articles, in March 1985 and February 1985 Amateur Radios, there have been suggestions that another article could be written. based on the circumstances which spawned

the previous two, which were the result of activities in the prisoner of war camps at a sugar factory in south east Germany. Hence. Clandestine Mark Three.



These barracks were built circa 1939, as open fronted garages to house the pending arrival of the Volkswagon, the Peoples Car, for German workers who had ordered them. Delivery was to be made, when the cars were paid for. Payment was made by weekly deductions

from the workers pay packets. The onset of hostilities curtailed this am bitious scheme, but the vehicles subsequently proved a military boon, as the garages were simple to convert to POW barracks. The roof of Iliii barracks was constructed of pine planks which were covered with heavy bituminous aper, single brick walls and a thin concrete floor. They were cold in winter and stifling in summer. The barbed-wire compound was locked at all times but the barracks' doors were open until 8 pm, for exercise, but NONE of us ded that

Prisoners work was either out-of-doors, shovelling snow, sugar beet or coal or in a factory,

which was humid with steam and heat. The work roster for most of the year was, 12 hours per day, 84 hours per seven day week Consequently, the inmates were a somewhat dishevelled and languid lot by the end of the

Outside the barracks, exposed to all weathers, was a coal fuelled hot plate, approximately 610 x 305m is size, which was the only means of heating food or drink Despite rosters, the congestion around this stove between seven and eight in the evenings defies description, particularly when it was cold and wet Consequently, many prisoners in-

Red Cross percels, containing small quantities of tea, coffee, cocoa and powdered milk, arrived on a semi-regular basis. However, the limited stove access was an obstruction to the intended benefits of the drinks.

Shortly after the fabrication of the Shortwave Receiver, (AR, March 1984) prisoners were each issued with an enamelled metal can with a tapered top, lid and carry handle. Capacity was about one and a half pints (about threequarters of a litre), with the primary function being for the daily factory ration of "ERSATZ" coffee. A friend suggested, "Sparks, (this was my nick-name in the camp), now that we have these cans, could you devise a hot water heater for use after our eight o'clock curlew?

Much had been learned from 'Operation Receiver', and I was now aware of the possibilities, and pitfalls, of extra-curricular activities so decided to investigate the probabilities of electrically heating water. NO PROBLEMS? ?

CONSERVATION OF ENERGY

Briefly the factors were, vigilance of the order necessary during the construction of the radio. and later, the compass, could be somewhat relaxed as contravention of German internal propaganda security and escape would not be involved. The guards would not be unduly interested as maintenance of the party, intact and working, was their role. The factory parapolitical management hierarchy would be the stumbling block as the conservation of energy, particularly electrical, was almost of fetish proportions. Power outlets were rare — none at all in our barracks and light points were limited and of low wattage. I hence decided to build an immersion heater, designed to drop into our cans, powered from one of the Edison screw base (ESB) light sockets.

Friends were sent to surreptitiously check factory salvage bins for light sockets, light globes, flex, stiff wire to support an element and, most importantly, heater element wire

with a profiled ceramic former

The latter proved a problem. A fortnight elapsed before a broken element was located. Alas, how much was missing? What was the remaining resistance? Without tools or instru-ments the formula would again be trial and

Lighting was controlled by the guards at an external switch box which held the sole fuse, no internal switches. Lights out was 10pm except for a single toilet light, which remained on all night. The barracks were locked and barred at 8pm, so clandestine activities had to be carried out in these two hours Each area of the barracks was serviced by

only one light, which we could not afford to lose, so the first need was an ESB double adapter, one outlet for the globe and the other for the heater. As could be anticipated, all manner of guile failed to produce one of these, so it was into the junk box. Two ESB female sockets were wired in parallel to a globe male thread, taking care that the exposed external threads were isolated from the neutral I worked in the factory's electrical workshop

charging batteries, painting switch boxes, etc. Soldering jobs were only possible when the absent

WORRYING TIME

All testing of the element had to be done immersed Easy you say! Try it sometime. The power could not be switched off and it was difficult to screw in the connection whilst standing on a firmsy table. As the wires to the element were exposed, this caused current leakage through the water and enamel defects and partially charged the enamel can. Also, not

blowing the sole fuse was a top priority.
The 240VAC supply (there was also 110VAC and 210VDC in parts of Germany) to our barracks was via a heavy gauge copper wire, which continued on to the guards guarters. The internal wiring in the barracks was only light gauge aluminium. Therefore, the 'operation

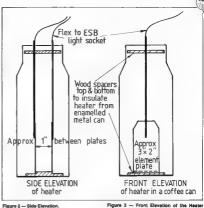


Figure 2 - Side Elevation.

heater' voltage drop effect should be less noticeable on the guards lights than in the barracks. This was a bonus, as the variation in light intensity was the only indication we would have of the heaters current consumption. Theoretically, the 20 amp fuse should cope with 4000 watts, but the aluminium wiring would not

Testing heater Mk1 produced a dramatic drop in the lights in our barracks, so obviously the broken junk element was too short. (Next day one of the guards mentioned the drop in the lights and I suggested it was possibly a momentary drop in RPM of the steam turbine driven alternator, that supplemented the factor-

A week later another short section of element was found, but over several nights of painstaking work, the old brittle wires refused to be joined. By now, optimistic members of our party could 'taste their hot cuppa' and subtle pres-sure on 'Sparks' to complete the project increased However, another month of searching still failed to locate a suitable element. I then vaguely remembered the use of two

metal plates, either as a water heater or variable resistance, that I had seen in Aus tralia. This led me to a completely different

had no idea of the optimum area or spacing between the plates necessary for our need other than the dimension limitations imposed by the coflee pot neck Because of the limitations of usable current, I decided to commence with small plates, approximately 1x.75 inches (25x19mm) and spaced 1.5 inches (38mm) apart

Once again the scrap bins arose to the affied cause and yielded more battered copper sheet which was duly flattened, shaped and soldered

positioned in the Coffee Can.

to the stiff wires used previously in the Mk 1 version. My New Zealand friend, a worker in the carpenter's shop, cut a spacer from pine wood. See Figure 2.

When tested, this version proved inefficient after 30 minutes only a slight water tempera-ture increase was discernible and, there was no visible lighting drop. A wattage increase was necessary so, back to the drawing board. ahtly larger plates were cut and fitted

Of course, practical ty dictated that we should have commenced with large plates and progressively reduced their area to save the necessity to return to the workshop to cut and solder larger plates. However, I was not prepared to risk using excessive current initially because of the predictable repercussions

Two further increases in plate size and a decrease in spacing spanned many days because of lack of convenient periods in the workshop. Finally, Eureka! After about 25 minutes the water was hot, about 80 degrees, accompanied by only a minor drop in lights. Great! We were there, now only the trifling last step to boiling point

ALMOST THERE!

Just prior to boiling, the water turbulence in the container rose and the lights dimmed what now? Several repeat tests verified this behavior so, obviously, under these specific conditions, the water resistance to AC was a converse situation. Increase in temperature caused a resistance decrease but with an increase in current flow It was now relatively easy to reduce the plate area by folding back a 3/16th inch (5mm) strip

down one edge of each plate with the two folds

made outwards to avoid any reduction in plate

spacing This version appeared to be the best compromise — a slight increase in the time required to reach boiling point and a decrease in the lighting intensity drop; although the latter still caused some concern at the point of This was eventually overcome by slowly lifting the heater clear of the water at the first sign of the lights dropping.

SUCCESS

During the following few nights, an operational procedure for water boiling evolved immediately our doors were locked at 8pm, our makeshift double adaptor was screwed into the light socket, which was not visible outside from the two small windows. The globe was replaced in one outlet, the heater in the other, exposed and alive. The heater was held by the flex and gently lowered nto the filled can, taking particular care not to allow the element wire to short against the can. The quards were not noted for their alacrity in replacing the fuse if it blew. When positioned in the can, the upper wood spacer prevented a short circuit

The damp concrete floor was a permanent earth and during the heating process, the can was partially charged - the operator adopting a permanent state of qui viva. A small price to

pay for a hot drink? ?

The entire operation was quite hazardous and normally would not have been perservered with but, the relative psychological and physical well-being values of a regular hot

drink, procured under clandestine conditions, amply compensated the risk. Personal safety was not highly rated
The coffee cans were five cup capacity, so

the party rostered themselves into groups of five and each group rotated in sequence nightly. The groups were always ready and waiting During the two hours available between lock-

up and lights out five cans could be brought close to boiling, hence 25 cups for 30 guests.

The electrical characteristics of the heater were now relatively stable and predictable. with only an occasional deviation stemming from an operators error After some weeks of basking in our new found, up-market living standard, an abrupt change in heater characteristics occurred. An increase in water turbulence was visible and current drain increased, noticeable by a drop in the light Either the voltage or spacing between plates had altered and there was no change in the wooden table that isolated the can from the concrete floor Where do we go from here?

Then an enlightening remark from one of the inmates that "It must be the water Sparks, the tea tastes lousy!" His nationality had been tea connoisseurs for over 300 years

That winter, the nightly temperatures had dropped to about -10 degrees Celsius and the water reticulation to the barracks had fractured We had to carry water from a well, attained by an Armstrong powered pump Could the status quo have been altered by this water change?

That evening after work, a can of the usual magically the heater reverted to its former behaviour Therefore the well water must have been mineralised to the extent that its resistance was lowered and its heating design characteristics were disturbed

FINALE

The heater was in use for 18 months, which made possible, over 7000 cups of tea, coffee and cocoa. This generated a morale boost beyond all proportion to the simplicity of the device. The arrival of the Russians on the German eastern border terminated, after four years, this rather debilitating and neurosis prone existence.

Electricity is presumed, and expected, to be ever available to serve man's needs. irrespective of location or circumstance. Prewar radio and electrical experience, once again made it possible to harness this energy to, at depressed slightly alleviate the conditions for 30 people

To obviate a possibility of the 'Clandestine theme becoming hackneved, this is a definite FINAL! To minimise connotations of egotism endeavours were made over the three articles to use second or third person grammatical form, but it seemed to cause a loss of realism. It is not recommended that "home brewers see this device as a low cost water heater - it is the absolute antithesis of safety.

Prior to producing this article, a quirk of curiosity prompted the writer to carry out a reenactment in his workshop, to substantiate the heaters characteristics, which were dependent on a nebulous memory. Taken for granted. workshop facilities, is: thermometer, a dramatic contrast to the vicissitudes of 1943!

The table above summarises the findings -

multimeter, clock with a second hand, etc.

note the racid and simultaneous temperat

increase and time span decrease above 70

PLATE SIZE TEMP RISE 1.5"x1.25" 3.25'12" 10-20 deg C 9mms 20-30 dec Strans 30-40 deg 40-50 deg (60-70 deg (2.5mms 70-80 deg 90-90 de 1.5mins 90-99 deg C fmin 54mins Temperature

Rise related approximate Elapsed Time with the Plates one inch apart.

The approximate resistance between the plates with water at 10 degrees Celsius was 1150 ohms and at 95 degrees Celsius, 200

degrees - the problem phenomenon in the

One experiment was made with the plate spacing reduced to .75 Inch but this had to be curtailed above 80 degrees because of the massive water turbulence, apparently caused by steam pockets between the plates. Once minium plates were used which formed an insulating film, obviously an electro-chemical reaction.

LET'S LOOK BACK

that the Bi-centennial year is fast approaching, and thoughts are being given to ways and means by which the amateurs of Australia may celebrate this important occasion is fitting perhaps, to just look back to the 150th

On that occasion, the IRE of Australia donated a most impressive trophy to the WIA, to go to the person "for the best work done in making known internationally the World Radio Convention and Anniversary Celebrations".

A DX contest was organised for Australian amateurs and at the 14th Annual Convention of the WIA, Sir Ernest Fisk announced that Mr D H Figher of York Street I augrestion was the winner

The plaque is of bronze, mounted on polished wood - a very impressive trophy, indeed The equipment used by the late Doug Fisher VK7AB, was naturally home-brew. The transmitter was AM with a 35T in the final. The receiver was also home-brew. — a well built superhet, the 'Cemutt' nine valve, designed by W6BAY. A photograph of the receiver is in Jones Handbook' of 1937/38. The antenna was a 138 feet (41m) flat and a "loop" on 10 metres. Doug's widow Val says it was the 10 metre operation that won the

day for Doug.
The trophy was presented at the Annual Dinner, Hobart in 1938 by Sir Ernest Fisk. Contributed by B W 'B II' Carter VK7AK



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ALSO IN DECEMBER

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- Starting Electronics, the beginners' series, covers active components
- * RTTY/FAX decoder to build, Part 2
 - Part 2
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FRG9600 Scanner Never Before! A scanning receiver that has so many features, offers so

much. And it's absolutely ideal for the amateur, tool it offers condinuous coverage between 60 and 903MHz, in all modes (SSB up to 460MHz), with FM and AM in both wide and narrow bandwidth. But that's not all.

You get 100 keypad-programmable memory channels, full rotary dial tuning as well as push-button tuning, fully programmable scanning an various modes... and much, much more PLUS it's a CAT unit; with the optional interface you can control its.

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Impressed? Not half as impressed as you will be with one in your

shack!

Specifications:

Range: 60 — 905MHz (SSB 60 — 460MHz) Modes (3dB bandwidth)

FM (N) 15kHz 0.5uV Sens (12dB SINAD) PM (W): 180kHz 1.0uV Sens (12dB SINAD) AM (N): 2.4kHz 1.0uV Sens (10dB S+N/N) AM (W): 6kHz 1.5uV Sens (10dB S+N/N) SSB : 2.4kHz 1.0uV Sens (10dB S+N/N)

Conversion: IFs: Image rejection: Triple for FM (N) AM & SSB, Double for FM(W) 45.75MHz, 10.7MHz and 455kHz 60-460MHz - 50dB typical 460-905MHz - 40dB typical 100 12-15V DC 550mA (lithium cell back-up)

Memory Channels: Power Supply:

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(Includes power supply) \$ 700 Cat D-2825



FRG8800 Receiver



No worries. Yaesu design engineers have excelled themselves yet again!

- General coverage from 150kHz to 30MHz
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PLUS, it's also a CAT system: add a microcomputer and the optional interface and you can transfer function to your micro!

And even more: with the optional VHF coverter (fits completely inside) you also get 118 - 174MHz.

It also uses the '7700' series of accessories: active antenna, and antenna tuner.

Specifications:

Modes: Sensitivity: Selectivity:

Antenna Impo

Power: 240V AC Cat D-2820 Alternative: FRG-8800 SW — 2MHz

Atternative: PKG-8800 SW — 2 to 30 MHz range, otherwise identical \$829.00 Cat D-2821

AM, SS8 & CW in both wide and narrow; FM (N) AM, SS8 & CW: 10dB or better (S+N/N) FM (N): 20dB or better (S+N/N) AM (W) 6kHz (-6dB), 15kHz (-5dB) AM (N), SSB, CW 27kHz (-6dB), 8kHz +5d0B) FM (N) 12.5kHz (-6dB), 30kHz (-4ddB) 50 ohms and 500 ohms (VHF conv 50 ohms)

LIMITED STOCKS
Optional

VHF

Converter
Yes! 118-174MHz from your FRG8800. And it fits completely inside
the set — operation is completely

automatic. Full dial or pushbutton selection, same features as standard set.

Incredible versatility - and full CAT operation too.

Cat D-2823



MEXICO QUAKE DISASTER AND AMATEUR RADIO



Jim Linton VK3PC

An earthquake measuring 8.1 on the Ritcher Scale sent shock waves through the City of Mexico causing death, injury and damage, on the 19th September 1985. The actual death toll may never be known, but estimates ranged from 5 000 upwards, with 40 000 injured

The heavily populated city was sociated because major communications centred were innoced out. Mexican annatural were the first innoced out. Mexican annatural were the first in while horning accounts of the earthquake became known, Sam Voron VI28VS, was operating portable in Sydney suburbar Williampiley Paris. Sam, with a radio display station as part of the Williampiley Paris. Carmied Sam of Virol (valentation, planned), just to do as he had on numerous other planned, just to do as he had on numerous other community of the planned plan

The Australian Trathic Net (ATN) Co-ordinator was told by someone visiting the Fair about news reports of US radio amateurs being the only link Mexico had with the outside world after the quake. Sam, with a group of helpers, found himself indexly situated for public access should there be a demand for third party traffic.

After the news modils was told, on Saturday, 21st Sphember, about adio mateurs being 21st Sphember, about adio mateurs being better and welfare messages to Maxico, many carraught Mexican begin arriving at Willoughby Park. By Spm, Sydney's radio and television stations had carried news of what amateur radio was doing.

A Mexican, Jose de la Vege travelled from

A Medican, Joss de la Vega travelled from Wiclingong to Willoughty Park to see if he could help, and Sam explained that a third party agreement with Mexico could be useful Mexico was one of a number of countries the WIA had sought, through DOC, to have formal TPT agreements with Australia, but it had not responded to the request. Traffit for Mexico could

IPI agreements with Australia, out it lead not responded to the request. Treffic for Mexico could however be routed via the USA or Canada, both of whom had TPT agreements with Austral a and Mexico. Joes, together with Martin VK2PJW, went to the

Jose, together with Martin VK2PJW, went to the Mexican Consulate to discuss the matter, and the Mexican Ambassador contacted a senior DOC official, who granted TPT approval for the disaster.



HE, the Ambassador of Mexico, Dr Jesus F Domene V



during the Earthquake Disaster

On learning of the IPT approval, Sam sent a profity message from Mr Jeaus Donneis, Merican Arnbassador, to Istevision channel (13, in Mexico City — the only station on the air. The message trad: "All Mexicans that have nelatives in Australia can send messages through aniateur radio operations. Permission granted 21st Septimber 1985, et 1300/UTC for Third Party. Traffic between Mexican and Australian amestur mades stations?"

Next day, word came back that television was being used as a notice board and the Ambassador's message was being periodically flashed on the screen.

Mass of the VK/XE TPT agreement was phoned to WIA Sunday morning broadcasts trom the WIA ACT Division following a request from DOC By this time the ATM was in full operation with stations in, at least, VKs 1, 2, 3, 6, and 7. Some of the stations included UKs 2BBT, 2ATZ (Westakes Radio Claté, 3HR 3CUG, 3CKK, 6MQ, 64GG, and 7RH (apploages to other who participated, or offered help, but whose call signs are omitted).

Telephone rumbers of participating stations, along with a story of their community service arong with a story of their community service involvement, was given to the news media in Melboume. The media, in turn, were clamouring for more details about amatteur radio's terovenent — it gave radio, televeson, and newspapers a local arigide on an overseas disastler. Radio news bulleten throughout / Justraka car-

ned the story, and in Melbourne, at least three TV stations had it in the evering news services. Meanwhile, Sam had a queue of people consoling each other, as they warded to fill in Amateur Radiogram forms for messages to their loved

ones, in Mexico. The Mexican Consulate was directing people, wanting to get a message to Mexico, to Willoughby Park

Telephones were ringing hot throughout Australia in the shacks of participating radio amaleurs. One difficulty they faced was in trying to understand the callers, both due to their emotion-filled womes and Snapsh accreate.

Amateur Radiogram				
The comment is being because type and such a web, may show these layers are				ning one of
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during his marathon effort to help Australians contact relatives and friends in devastated Mexico City.

With the considerable number of messages for Mexico being put in at the Australian Traffic Net. poor propagation to the USA, and a growing backlog of Amateur Radiograms, the WIA Victorian President, Jim Linton became concerned

On the Monday he contacted Telecom to see if three co-ord-nating radio smateurs could have free international Subscriber Dialing (ISD) from their phones, so they could pase messages direct to US radio ameteurs. Help of the Australian Red Cross was also enlisted, to approach the Over sees Telecommunications Commission (OTC). 30 obtain free ISD access

Both Telecom and OTC responded favourably. and the first to use the free overseas calls was Ker VK3CKK, on Tuesday, 24th September Be-tween 1400 and 1700UTC (midnight and 3am local time) he passed 90 messages to Dick Hoppe NST, n New Mexico, USA. Ken had help from a group called the Knox Community Volunteers, who manned h s phone, and the two additional phones installed by Telecom

Members of the Eastern and Mountain District Radio Club, including John VK3DP, Gwen VK3DYL, and David VK3UR, assisted Ken and put up a better 80 metre dipole for use on the ATN's 80 matre frequency.

Ken originated about 150 messages to Mexico received from throughout Australia A second radio amateur to be given free ISD access was Fred VK2DZL, who collected 120

messages from Sam, and passed them, via the telephone, to Bil Smith W7GHT, in Idaho. The third was Alan VK3CUG, at Barkers Creek, The third was Alan VKSCUG, at Barkers Creek, central Victoria who pessed some 60 messages to Troy Grimshore K7OVK, in Oregon Alan also managed, on air, to pass about 20 pieces of traffic to KH6SP at Pearl Harbour, who then relayed them to the US West Coast National Traffic System Net

Alan had been involved in the operation from the Saturday evening, when the first messages for Mexico were received on the AFN. His telephone rang hot with calls from people throughout Australia all wanting to get a message to Mexico, and also the news media seeking information on his

Later, due to continuing poor propagation messages from Mexico City were received from the USA using the ISO telephone facility provided to the three participating radio amateurs.

During the telephone calls it was learned that just one US radio amateur had reported handling 4 000 welfare messages for Mexico. Another

Yours sincerely. Alfonso and Louise Cardense, 27 Greenhill Cre Saint Ives, HSW. 2075.

Department had airlifted five fully equipped radio mateurs into Mexico City to help with emergency

communications

Overall, an estimated 600 messages for Mexico it provided received unprecedented media pubity, and left a good and lasting impression about the hobby with the authorities, and the naneral

On 24th September, the Mexican Ambassador, On 24th September, the Method of appreciation to the President of the WIA, on behalf of all

Mexicans. The letter stated: In the name of the Embessy of Mexico, and all

the Mexicans in Australia, I wish to express to you, and by your kind mediation, to all the amateur radio operators in Australia, our most grateful thanks for the time and effort they so generously gave in aid of the relatives and friends of the people of Mexico City, who were left without means of communication following the trace earthquake of 20th September. You kindness and solidarity will not be formatten.

LETTERS OF APPRECIATION The following letters were received by Sam

Council at its meeting on 23rd September 1985, received a Mayoral Minute on the tireless efforts of the Willoughby Amateur Radio Group in assisting families and friends make contact with Mexico City in the wake of the recent tradic earthquakes

Council subsequently resolved to convev its congratulations and thanks to you and the members of the Willoughby Amateur Radio Group for your dedication to the services of others during this emergency.

It gives me great pleasure to convey Council's decision to you and to also add my personal thanks for the compassion you have shown in assisting numerous Mexican families during their time of great smotional stress. Yours faithfully.

A # Payne. TOWN CLERK. The Council of the Municipality of Willoudhby.

Once we have been able to obtain information about almost the total number of personas who have consulted this Consulate-General (Mexicans and Australians), I wish to express to you our recognition for your valuable assistance which came just in time, specially during the first most tragic days.

Thank you very much Yours sincerely,

Hugo DianThome. Consul-General of Mexico.

We sincerely thank Sam Voron and his friends for the wonderful support and hard work following the Mexico City Earth-

quakes It was an anxious time for the Mexican Community in Australia, and we appreci ate all the time spent making contact with Mexico



BUI HAS A GO AT Ted Holmes VK3DFH

20 Edmunds Street Parkdale, Vic. 3195

Building a RTTV modem proved to be a little beyond Bill B-riberingtwit, mainly because it was not possible for him to util se anything suitable from his vast store of junk. He figured that if he had to go and buy all sorts of parts be might just as well buy a ready made modern Better be sale than sorry — an attitude unique to him

Now the modern was connected in posit on to his dipole and into the Model 100, which was still sitting on the floor From somewhere or other he had managed to scrounge a reel of teleprinter paper. An earlier experiment with some of his wris's kitchen paper towe s had proved to be a disma failure. It had provided some temporary entertainment when it had come apart in the mechine and required picking out fragment by fragment, with tweezers. However, Lnow really looked as though B II was at last in business. He turned the machine on and I gave out a

satisfying humming sound. Then he turned on his FT 101E and tuned around on 40 metres. He was in luck somebody was warb ing away and Bill fiddled about until little lights on the modern began to blink it gave him quite a start when the Model 100 suddenly started chattering away Bill was delighted. At last he had got something to

work? He realised what Columbus must have felt like when he discovered America. The printer reached the and of its line and stayed at one spot bus-ly hammering away at the edge of the paper making a sort of black blob

What was this? Bill was mystified. There had to be something wrong with the machine. He kicked it but the thing still hammered away in one soot. Then, just as suddenly as I had started the warbling sound ceased and was replaced by a similar sound, somewhat lower in pilch. Bill feit triumphant. He knew what that was! He adjusted the frequency on the FT 101E and once more the Model 100 began to tap happily away. However when it reached the end of the line it made the same sort of blob again There had to be something wrong with the dratted

thing. The message up to the biob seemed to have been typed by somebody using his feet, but apart from that, it had a slight resemblance to english But the blob business puzzled B I! He grabbed a screwdriver and started poking, ending up dropping the tool into the mach ne's bowels. That finished his first attempt at RTTY, se, by now he was slightly bored by the whole business. Leaving the screwdriver still in the machine he ripped open a beer can and drank thoughtful y

Nobody had told him about the lack of carriage returns sometimes experienced with people who sent RTTY by computer and received their messages on TV screens.



WIA EXPOSURE

During a recent "Sale of the Century" programme on television. Tony Barber, the hoel and question-master, displayed a WIA badge, sent to him by the Federal Secretary Tony commented that the WIA was 75 years old this year, and that it was the oldest society of its kind in the world

Delvana Delaney, his hostess, mentioned that Delivene Delaney, his hostess, mentioned that he film star Marton Brando was an amateur This fact was also reported in '73' magazine of September 1985, which gave a call listing as follows. Martin Brancheaux FOOGJ.

The "Sale of the Century" programme was good exposure for the WIA and emateur radio.

snippet of information was that the US State Page 20-AMATEUR RADIO, December 1985

AUSTRALIAN RADIO JOURNALS BEFORE 1939 — A SURVEY



Chris Long

5 Terring Read, East Hawthern, Vic. 3123

Historical matters have come to the fore during the WIA's current 75th Anniversary celebrations. The July issue of Amateur Radio contained a good deal of historical writing, though no references were given to the sources of the material. Such facts and dates are unsubstantiated. Anecdotal material passed on through the spoken word is valuable for fleshing out the dry bones of history, but definitive facts and dates can only be positively ascertained with reference to written or printed records.

In July's state of Amateur Radio Jim Linios gree us on outline of O' W Setly's work, but I question the source of some of the date: he days that the source of some of the date: he with wireless stellerpshy earlier than 1897, eccording to the RADIO EXPERIMENTER article published in February 1824. An olleged reference to an article to a Setly's wifeth An olleged reference to an article to a Setly's wifeth and the set of the set

"In 1896 he sent a wireless telegraphy message from Brighton to Cauffield?"

Further research is certainly necessary on this matter. It would be not to say that Selby, a Victorian experimenter, was the first Australian radio amateur, but proof of such a claim is necessary first.

During my recent appointment as the Actung

Cuttor of Electroms at the Museum of Victoria, In had access to the Goad storage stacks of the Sales Library of Victoria. I took advantage of the Library of Victoria. I took advantage of the Cool and the Cool and

Before the First World War, most of the literature on wireless telegraphy was only available in books which were difficult to obtain. There were few specialist journals on the subject, and none locally published. References to local experiments were scattered through newspapers, or reported in the transactions of engineering societies. GW Selfys work can be found in print in the Melbourne ARGUS of 29th April 1899

By 1900, H W Jerney of the Victorian Post Office, as chief telegraphist, begain a series of experiments anto wireless telegraphy, particularly with a view to its practicularly sinch a very to the process and process appearance to colorate recaptally systems in the early 1890s, which was the standard Austraham text of its time. Assisted by M IF Titiggraff and F W Chambers, he initially set up stations at the Melbourne Observatory and the Melbourne GPO. A circuit of the GPO. A circuit of the Melbourne GPO. A circuit of the GPO.



to bedtime stories in 1925.

1900, is held by the manuscripts section of the La Trobe Library. The Museum of Victoria also holds a telegram sent from Chambers in Doneaster to Jenvey in the city, confirming reception of wireless telegraph messages during the latter part of 1900.

In May 1901. Jenyey set up a temporary station at Elwood to communicate with the Duke of York's escort ship, St George, during the Royal Visit for the opening of Australia's first Federal Parliament in Melbourne, Lieutenant Trousdale controlled the Marconi equipment aboard the escort. The complete Morse tape record of the Jenvey/ Trousdale communication of 18th May 1901 is held in the La Trobe Library's manuscripts section in Melbourne. About six weeks later in Hobart, Trousdale conducted a similar experiment with the pioneer Tasmanian amateur F W 'Pop' Medhurst These were the first confirmed ship-to-shore wireless communications in Australia, though there are rumours of earlier tests conducted by G W Selby to the HMVS Cerberus which have not been

Jenvey's wireless telegraph experiments were cut short by a new Director of Posts and Telegraphs in about 1902. The new director saw wireless telegraphy as 'unproven', and directed Jenvey to activities which seemed more likely to produce immediate revenue. A complete account of Jenvey's experiments was not published until the LISTENER IN revealed the sad details on 19th June 1926. Jenvey's coherer detector is in the collection of the Museum of Victoria.

The next local wareless event which was sufficiently important to gain press coverage was the opening of the Queenscliff-Devenport link across Bass Strast on 1906. The Marconi Company sent its engineer, Captain L Walker, to set up the apparatus. Massive masts were erected at Ougenscliff, near the football ground, and a special excursion train from Geelong loaded with dignitaries was chartered. Jenvey is believed to have been involved with the Victorian side of the installation. The GEELONG ADVERTISER, 13th July 1906 (p4) and the Melbourne AGE, 13th July 1906 (p3), published lengthy accounts of the opening ceremonies. The receiver, a 'magnetic detector', together with the three-circuit aerial tuner used on that occasion, are both held by the Museum of Victoria

In 1908, a Possa Electrical Society of Victoria was formed with If W Jerrey as its first president Technical papers were read at each of their monthly meetings, and wireless stelegraphy must have been the subject of some of these. I cannot locate any extremely circulated. The Society in its extraordiors or proceedings for the Society in the property of the Society in told in the TELECOM-MUNICATION JOURNAL OF ALSTRALIA. June 1938, (page-187).

Experimental licences were first granted under the Wireless Telegraphy Act in 1905 Prom.nent among the radio amateurs of the pre-First War period was Victor Naghingal of Gliehnhuits, an interestic experimenter in all thinge electrical Pet and held many pattern in fields as drivers as slow combustion stores and soom recording machines. A cataphosi of his experiments is held by the son in Warrandyte, Vic. The Museum of Victora holds some of his X-ray gear, but no radio exquinment some of his X-ray gear, but no radio exquinment was a some of his X-ray gear, but no radio exquinment and the properties of the presence of the complex properties of the properties of the properties of the properties of the Warrandyte, Vic. The Museum of Victora holds great properties of the properties of the properties of the properties of the Warrandyte Victora properties of the properties of the properties of the Warrandyte Victora properties of the properties of the properties of the Warrandyte Victora properties where the Warrandyte Victora properties of the properties properties of the properties prop

The minutes of the Wireless Society of Victoria, have miraculosity survived. These document the activities of the local amister, is from 1910 to 1914. A few weeks before the declaration of war, the published the first Australian radio call book. A copy is held by the State Liberary of Victoria Photostat copies of the early minutes are held by the Ederal WIA Historian, Max. Hall WSAS.

All amateur radio activities were suspended during the First World War, though many former amateurs extended their radio knowledge in the services, particularly in respect of the provision of communication with the troop transports on ships. Amateur communication, as a pastime, went into recess until the early 1920s.



who hears for the first time through radio receivers'.

In 1922, the first issue of a Sydney wareless journal, SEA LAND AND AIR, was put on the market. A few years later this became the 'Official Journal' of the NSW Division of the WIA, but the official journal of the Federal Convention and the Victorian Division has always been published in Melbourne, as we shall see. By 4th April 1923, SEA LAND AND AIR was absorbed into a fortnightly periodical, RADIO IN AUSTRALIA AND NEW ZEALAND, which was first published on that date. This continued as a fortnightly journal until 13th April 1927 when it became a monthly, still published in Sydney. The last copy of RADIO IN AUSTRALIA AND NEW ZEALAND (sometimes known more simply as RADIO) held by the State Library of Victoria is dated 15th December 1928. WIRELESS WEEKLY. the Sydney journal which had been running parallel with RADIO since the mid-20s then absorbed its rival, and the first WIRELESS WEEKLY incorporating RADIO was published on 28th December 1928 WIRFLESS WEEKLY ran through to the early months of 1939, and then seems to have been re-organised as the monthly RADIO AND HOBBIES IN AUSTRALIA, first published in April 1939. It continues today as ELECTRONICS AUSTRALIA. The Wireless Institute's own 'official journal' was

initially the RADIO EXPERIMENTER, a Melbourne-based monthly, first issued in December 1923 The Wireless Institute ceased to be involved with this journal after June 1924, though it continued under private ownership as the RADIO EXPERIMENTER AND BROAD-CASTER until July 1925

After the split from the RADIO EXPERIMENTER, the Wireless Institute's official nournal became EXPERIMENTAL RADIO AND BROADCAST NEWS, which appeared in August 1924 and ran monthly until February 1925. From the March 1925 issue it was renamed RADIO downer v magazine ICEX PERIMENT



Radio sets available in 1923



A Speaker of Excellence in 1924.



IN THIS ISSUE 3 Super Sensitor Refers

BROADCAST. This was an expensive-looking magazine, printed on glossy art paper with a cover of dyed and textured cartridge paper. It was lavishly illustrated throughout, usually in inks of several different colours. It provides a wealth of written and pictorial documentation for the radio historian The Melbourne-based RADIO BROADCAST continued in monthly editions as the WIA's official journal until January 1927, and then went into a swift decline. There was no February 1927 issue, March and April were published in a reduced size. Then a 'new series' of RADIO BROADCAST was issued weekly with no cover - virtually an eight page pamphlet. The State Library of Victoria has only one issue of this pamphlet format for 10th June 1927.

From the 10th June 1927 to the first issue of AMATEUR RADIO in October 1933, there is a mysterious gap in the printed record of WIA activities. There must have been some sort of 'official' WIA publication during this time, but I am not sure that any publication that I have sighted could be the one in question. The front page of a printed 'WIA BULLETIN' for February 1932. 'Vol 3, No 8', is reproduced in the WIA BOOK. This 'Bulletin' seems to have been printed in Western Australia, and with the issue numbers given it could have filled the gap quite nicely. But is this merely a state bulletin? As the State Library of Victoria holds no examples, I am unable to comment on its content,

Another possible 'official publication' of the WIA is RADIO MONTHLY (Sydney) of which I've seen only a few isolated assues in private collections. This was a voluminous production published by 'Amateur Radio and Broadcast Monthly Pty Ltd'. The two copies sighted were for September 1932 and December 1933. The latter is held by Peter Wolfenden VK3KAU, and is numbered 'Vol 2, No 10', Assuming one volume per year, it was probably established at the start of 1931. It continued well into the 1930s.

From October 1933, amateur radio events have been reported in the WIA's own monthly AMATEUR RADIO magazine, and a complete set is held by the Victorian Division. The State Labrary's set is incomplete, having only a few odd issues before 1946. The story of Amateur Radio, the magazine, was told in the Golden Jubilee issue, October 1983.

But it would be wrong to assume that amateur radio activities were ignored by magazines not possessing the WIA's official sanction. Some of

ALITTRALIAS FOREMOST RADIO JOURNAL



Price One Shilling



lst July 1925.

1 Trip Through 1LO.

All About the Super Het

Page 22 AMATEUR RADIO, December 1985.



The Amaleur's Magazine
of Special Interest for
HOME DECORATION
WIDELESS ENTHINASIS

the most fascinating and denaited descriptions of early amature activities are to be found in seemingly unpresentious hobbyts magazines. During the 1920s and early 1930s, the Melbourne firm of Homecrafts (P. H. McEiroy) either published or was associated with a series of shobby journais which encouraged sales of their racio components. They published articles of a very high hobby along extremely well in us early wars. The uninspering titles of these magazines discourages many researchers from using them as references, but they should not be underestimated.

The earliest of these journals, of which I am source, use the MoME CRAFTSMAN, a monthly journal joblished between September 1921 and several properties of the properties of t

In June 1925, Homecrafts published the first monthly edition of THE HOMECRAFT MAGAZINE. This had radio as its principal thrust, with occasional additional articles on model making. Stan Hosken 3MP, was the Technical Editor of this excellent tabloid, which was slightly smaller, but thicker in format than the earlier HOME CRAFTSMAN. The HOMECRAFT magazine published lists of stations heard in Melbourne which provide an interesting insight into the number of broadcasters who briefly occupied the bands in these early experimental days. Its content is otherwise reminiscent of RADIO TELEVISION AND HOBBIES in the John Moyle era. The HOMECRAFT magazine ran until October 1926. A magazine of much larger format. POPULAR HOBBIES, then took its place. This was one of the best Australian electronics monthlies of its era, running until the economic depression knocked it out in 1932. POPULAR HOBBIES published the first local constructional article on the design of a working closed circuit television system, in 19281. It described the operation of such





House of Homecrafts

Family

F

41000 AND ILL De- 2



1st February 1927.

new inventions as radio facsimile, and even had indepth descriptions of broadcast studio design by 3AR's chief engineer, Donald Macdonald. A truly creditable effort, and a very good read. What a pity it is that Homecrafts no longer serves the radio commonent trade.

Many commercial radio journals of the late 1920s and 30s carried amateur radio news. The Melbourne weekly LISTENER IN, first published on 10th January 1925, the southern equivalent of Swiney's WIRELESS WEEKLY, had regular amateur notes by Max Howden 3BO. His column of intelligent comment and dry wit was constantly accompanied by technical articles and constructional information. The paper slowly changed into a radio entertainment guide during the 1930s. A particularly humourous touch is added to some of the editions from 1928, which include programme notes for broadcast band music transmissions by 3RY 3EF and others. This 200 metre activity of the early amateurs kept our hobby in the public eye, and its value in maintaining public relations must have been great. Anyway, it must have been fun to play 'decay' each Sunday on your own transmitting gear. LISTENER IN continues today as the TV SCENE

The LISTENER IN had healthy competition during the 20s from the Melbourne-based POPULAR RADIO WEEKLY, a tabloid of smaller format than its competitor, but printed on better glossy paper, POPULAR RADIO WEEKLY began on 25th February 1925, six weeks after the LISTENER IN, and continued until 20th June 1928, when competition forced it to change its format. On the latter date, it became POPULAR RADIO MONTHLY, with more discursive, lengthier articles. Then on 1st November 1928, it changed its name to POPULAR RADIO AND AVIATION, with a mish-mash of material from both spheres of interest. The last issue of the magazine held by the State Library is for 1st May 1929, and I assume that it folded,

Continued next month . . .



SCHOOLGIRLS TARGETS BY

Women CSIRO scientists, and technical staff are to tour Australian high schools to encourage more girls into scientific careers.

Science Minister Barry Jones, and Education Minister Sanator Susan Ryan saud the scientists would encourage girls to study science Only about four percent of Australia's tertiary students in engineering and technology were termels and girls were under-represented in "hard science" subjects in secondary schools:

OSCILLOSCOPE SET FOR WORLD

An Australian firm is hoping for big export orders after developing a new form of oscilloscope. Melbourne-based BWD Industries is confident of tripling international sales in the next 12 months with its 881 Powerscope 11 This model is a high

war its boil "Evellscope" I fills model is a right performance oscilloscope which provides accurate measurements of voltage, current, power, phase, and time. Unlike conventional oscilloscopes, this one can amultaneously display multiple in-circuit power

simultaneously display multiple in-circuit power control measurements up to 1000 volts. Additional features allow it to operate as a conventional oscilloscope for measurements up to 50MHz.

BWD describe it as the most versatile and universal test tool available.



Peter VK3KAU (standing), with (from left) Michael VK3KI, Cynthia Wolfenden (XYL VK3KAU), and Max VK3ZS.



VK2ZTR and Anne VK4KZX



Alan VK3RRM Pat Noble (XYL VK3BBM) and Alan VK1KAL.



FROM LEFT: Nao N1CIX/JH1VRQ/VK3DYM, Mayis



VK4 representatives, Anne VK4KZX, and Guy VK4ZXZ.



Hideo Agawa



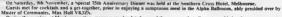
ABOVE: Nan Owen (XYL VK3KI), Harold VK3AFQ, and Judy (XYL VK3ADW).



ABOVE: The (Right) Honour-able Michael Duffy MP. FAR LEFT: Ross VK3CRB, and his XYL Phil chat to an overseas guest, Tadao JA1G JE. LEFT: Peter VK3YRP, Allen VK3AE and Jack VK3SP.



On Saturday, 9th Sovember, a Special 75th Anniversary Dinner was held at the Southern Cross Hotel, Melhourne,



During the evening, at Max's suggestion, menus were circulated around the room so that all guests could sign them as a memento of the auspicious occasion Messages of congratulations were received from The (Right) Honourable R J L Hawke, Prime Minister of Australia, Mr Ronald

Reagan, President of the United States, and Senator Barry Goldwater. (See page 3). At the conclusion of the meal, the WIA Federal President, David VK3ADW, was the recipient of many gifts from the overseas guests, presented on behalf of their organisations to mark the Institute's Anniversary.



Bill VK3ABP (Editor of AR) and his XYL. Margaret.



ABOYE: Menus were autographed by each guest present as a memento. LEFT. Dick W1RU proposes a locast to the W1A. RIGHT: Roas Ramsay apoke on behalf of the Department of Communications. Ross composed some limericits for the occasion, much to the amusement of the audience.





FAR LEFT The Chinese Radio Sports Association presented the WIA with a colourful wall hanging LEFT: An engraved plaque was presented on behalf of the Radio Club Venezolano. BELOW LEFT: Some of the gifts

BELOW LEFT: Some of the gifts received BELOW A magnificent gold clock (set on GMT), presented by David G3OUF, on behalf of the RSGB.





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Club Confere	once — How it all started	Jan	31	Plaque Pres VK3LC	sentation to Alf Chandler	Jan	33	DX3000 Cop	munications Receiver	May	36
Collectors C	orner by Alan Shawsmith	Nov	26	Please QSL	. — Send Spoon! abridged	Jan	8	Error Free	Radio Data Modem	Nov Nav	72 72
VXIII		Nov	47	From CO as	ngazine round Sydney by Sam Voron	Apr	13	High Gain C	mnl Directional Antenna for	May	37
De-Regulatio	Group on & Self-Regulation by oft VK3AE	Aug	21	VK2BVS				L2GHz	d-Held Scanner	May	36
Allan Foxere	rt VK3AE	Mar	37	Pre-World Shawamith	War Two VK4 History by Alan VK4SS	Nov	29	IC Tools		June	37
Elghty Metre	Outlet Added to VK2RCW	Sep	34	Preatigious	Award for Award Custodian. Teomas M B Elliott by Alan	Mar	61 35	In-Line SWI	/ Power Meters	Dec Feb	54 24
by Tim Mills	n the Olden Times by Alex	Nov	46	Shawamith	VK455			Intensity Fo	ninment	Dec	54
		Ort	8	Profile of T	Wo New Members of the WIA	Nov	21		Watt Meter Kit		36 27
to Aircraft h	HF/UHF Signal Levels due y Gordon McDonald	UCT	8	Badla Mast	a - a Mbanalty of Municipal	May	15				30
		Mar	27	Councils W	lage War on Amateur Radio ble V K388M			Measuring I	nstruments SX-355 Pocket Scanner	Nov May	30 72 37 37 56
Examination	Paper Pre WWII	Jal	63	Radio Stati	on on Wheels abridged from	Nov	27	Mobile Aptr	nna Mount	May	37
Federal Con	ns a Beginning	Jul Oct	14 27		ake Disasier & Amaleur			Noise Bridge	04	Oct	54
				Radio by Ji	m Linton VK3PC	Dec	19	Packet Radi	o Modem	Nov	72 36 72
	r, Pedal Radio & Alf en McLachian VX3AH	Oct	37	Radioconus force	nunications Act — now in	Oct	5	RF Meter	B Repair Station	May Nov	35
		Nov	17	Red Cross	Marray River Canoe by Gil Sones VK3AUL	Feb	28	RF Video Me	dulator	Dec	54
Mark Stephe Forgotten G	nson VK3PIRadio	Mar	22	Harsthon b Remembra	nce Day 1985 Speech	Sep	28	RTTY/CW N	lod-Demod ranscelve Computer	July Jan	19 32
78		Apr	19	delivered b	nce Day 1985 Speech ny Richard Baidwin WIRU - Friend or Foe: Part 1 by	Mar	36	Programme	•		19
	ternational Friendship by Paul VK6KOF			Tias Mills V	KZZTM			Steren Synt	ination Clips	Dec	54 30
From Wirele	se Telegraphy to Amateur Archibald VK2KU	May	13	Repeaters - Tim Mills V	- Friend or Foe: Part 2 by	Apr	23	SX155 used	by Rescue Squad	Aug	30 54
G-George, Pa	rt 2 by Alan Hawes	Apr	26	Repeaters -	- Friend or Foe: Part 3 by	May	35	Tons Produ	nd at Home	Mar	50
Cannan Willi	am Salby: An Early	Ani	28	Tim Mills V	- Friend or Foe: Part 4 by	Sun	7		WR Power Meter	May	37
Wireless Pio	am Seiby: An Early neer by Jim Linion VK3PC	Oct	62		K2ZTM	Mar	53			JAN	- 14
Lawless VK3	ter Rumpus by Lindsay			Scrambling	with Two Metres by Lionel 3NM	Jun	23	NOVICE N			
Greatest Sho	w on Earth by Colin K2DYM	Jus	11	Curling VX	3NM	Mar	21	Are you Zer	Beat?	Dec	22 34
Hamventing	1984 by Ken McLachian	Jan	29	by Bill Mar	lought a Personal Computer!			Diode Switc	bing the trial tri	Jun	34
VK3AH	VIII Travel by Lionel Curling	Apr	22	Solar Geopi Povater VK	SBYF	Sep	62	Just a Piece	of Wire	Mar	26
VK3NM	MATERIAL PROPERTY OF THE PROPE		24	Some Answ Questions	rers to the Readership	May	5	PACKET R	ADIO		
Foxeroft VK	F Radiation by Allan	Sep		Some Miles	tones in Communication	Jul	36		e of Packet Radio	Sep	38
	F Radiation: New Standard croft VK3AE	Oct	7	Special DO	C Release	Mar Nov	5 71	la Turmoil		Jul	44
		Apr	8	Story of OS	posent Register for 1965 CAR 10 by Bill Rice VK3ABP.	Aug	22	Relatroduci What I did o	n my Christmas Holidays	Sep Mar	44 36
Australian A				Technical S	ack Satellites	Oct	61 14	The Future.		Jan	36
Clandestine	Hot Water by Reg Glanville		14	by John Ga	zard VK5JG A Pioneer Remembers by	Jul	30	POUNDING	HILSON		
VK2ELG	rays - at home and abroad	Oct	4)	Jim Linton	VK3PC			Bita & Piece		May	42
by Alan Shar	wamith VK4SS	Oct	17	The Beginn	ring of IREE — How it all rinted from Monitor	Jan	6	Contests	e Biggest Key	Oct	55 50
Hull VK3ZS	mboree on the Air by Max			The Future	A Prognostic Look Ahead Vay Round by Moira Milgate	Jol	37	Getting it RI	ght	Jus	42
History of Si	OS by Max Hull VK3ZS	Mar	37			Nov	48		rse (Reprise)		51 38
How Long Is	a Dot? by Guy Fletcher	Aug	14	The Nightia	ngale Sings by Ted Gabriel	Aug	29	Odds 'n' End		Пес	46
How's DX fee	sturing guest writer Ivor	Jan	30	The Ripple	from the South by Alf K3LC	Jai	11			Feb	35 53
	Users Endanger Life	Feb	25	Chandler V	K3LC	Aux	20	Whither CW	ce for the Novice Operator	Jan	41
Indian Amat	eurs in Emergency by Grace		25	Historical F	Reprint			Why use CW	7	Mar	43
Dosan VU2A	IG 60th Anniversary	hal	18	VK2COP	ecker Project by Bill Martin	Aug	13	RADIO TE	LETYPE		
of the IARII.			45		eport — You and Your	Mar	9	Add on Mod	for the Siemens	Sep	12
Martin VK26	teh Statistics for 1984 by Bill			Radio - Th	er Phonetic Alphabet by			Teleprinter	Inbuilt Power Supply by VK3ZPF		
	- Sunspota, or the Lack of Poynter VK3BYE	Jan	55	Maxwell Hu	all VK3ZS	Dec	35 40	Add on Mod	s for the Siemena	Oct	10
Highlights of	Amateur Wireless History.	Dec	43	Subscriptin	unications Magazine — 1985 un Rates	-		Frager VK37	Space Counter by Peter		
Lizard Island	i Base for Cairns ARC by	May	29	Victoria: Pr	ressier Division by Jhn Liaton	Jul	27	Add on Mod	s for the Siemens - Shift Indicator by Peter	Aug	16
Main QSP -	75th Anniversary Details	Jan	5 36	Village Vee	kay by Harry Atkinson	Nov	8	France VKS	PF		
Max Loveler Let's Look B	# Memorial Collection	Feb	36 16			Sep	31	Another Cry	ratal Controlled AFSK or RTTY by Maurie Hooper	Jun	12
Model T Pov	rer Supply by Herb Luger	Sep	8	VX2ROX A	Amateur Radio — Public tions by Pierce Healy	Sep	29	VKSEA		Feb	23
VK2LJ	Tesla by Herbert Schwartz	Jour	20	VK2APG				from Dec 18	s to VK2BFG RTTY-Morse	,	
VK3DHI/K7	IVL		46	VK3WK Ac	ronautical Mobile Fights off in Linton VK3PC	Oct	23	Shift Light 6	or Mechanical RTTY by	Apr	17
Norm Melfo	tten Pioneers of Radio By	Sep		Waverley A	mateur Radio Clnb	Nov	61	VK3BFG RT	sford VK5XI TY/Morse by Peter Cossins	Jan	16
Murphy & t	he Tower by Mal Le Maistre	Jun	21	Western Ac	astralian VHF/UHF Story by	Aug	6	VK3BFG			
								AM	ATEUR RADIO, December 198	5-Pag	v 27

ı	TILE	MONTH		OT 1	TITLE MONTH			WGE	THILE MONTH			PAGE
ı	TECHNICAL				Bruce Hannaford	VKSXI			Organising F	field Exercises by Mark	Aug	52
ı	240V 50Hz Meter I VK3SE	y Stan Widgery	Sep	2!	TCA 1675/1677: A Amplifier by Lloy	Cbeap Linear d Butler VX5BR	Aug	17	Packenham S	/K3PI	Aug	50
ı	Adaptive Keyer by VK2EDB	A Van Der Byl	Feb	12	for WA Auroral C	pendence — Curinius ommunication? by	Jan	12	Red Cross M: Marathon by	urray River Canoe Gli Sonea VK3AUI	Feb	28
ı	Add-on Mods for ti Teleprinter — An I	nbuilt Power Supply	Sep	12	Technical Side of	Early Amateur Radio KSJG	Jan	14	Region 7 Exe Standardisat	ion of Connectors	. Jan	51 47 38
ı	by Peter Fraser Vi	SZPF			The Gee Knot by I	Errol Chick VK3GG	Oct	49	Vic Dienlen f	tinued from December	. Jan Sep	52
ı	Add-on Mods for th	ne Siemens nee Counter by Peter	Oct	10	The Roll Up by Cl	urls Carter VK6FC	Sep	23	Victoria Lear	ns a Lesson or Two Early in	Apr	52 44
ı	Franer VK3ZPF	www.minoumerina			Bruce Hannaford	Power Supplies by VK5XI	May	28	1985	Displan Company	. Mar	48
ı			Aug	16	Turn Indicators of	a Camira Affected by	May	17	Western Zon	Displan Seminare Activities	Sep	52
ı	France VK3ZPF				RF by Rodney Ch Tuned Feeders for	r Vergatility &	Apr	16	Western Zon-	e Activities	. Oct	58
ı	Aircraft Enhancen Signals by Doug M		Jul	4	Efficiency by Vic. TVI7 by Geoff Gri	Joyce VK2EVJ	-					_
ı	Aircraft Enhancen		Nov	9	TVI? by Geoff Gri VK5 Low Noise 2:	n Preemplifier by	Sep Feb	38 8	~ 0.	0.0		
ı	Signals by Roger I	farrison VK2ZTB	Nov	18	VK5 Low Noise 2r Craig Maltland VI	CSZAW			63,	SAR COC	250	7
ı		Lloyd Butler VKSBR . Antenna Polarisation	Aug	10	VX6NMS Halo by Wide Band Linear	Amplifier — Further	Feb	12 22	C8 JER	545 (1) P	31 2	ソ
ı	by Bob Slutzkin VI Another Crystal C	(3SK	Jun	12	to November artic Yacou FT-480 2m	de		19	(,)	12 556	163	
ı		Y by Maurie Hooper	Jun	12	Modification by S	am Paucoe VK6KSP	Aug	19	22)		
ı	VK5EA	TY System by Lloyd	Sep	10					4004404	1.00		
ı	Butler VK5BR				THUMBNAIL S				ARMADIL	III run again in 1986.		
ı	Antenna Tuners w "Chassis Bashing"	ith Parallel Tuned	Nov Dec	15 34	Jbn Berry VK4W Roy Belstead VK4	B	Feb Nov	21		e members of the Texas	DV 6	
ı	Circuits by Leo We	iller VK3YX	Dec		Arthur Burion ex	VK4FE	Apr	50 59	decided to t	ry their hand at county I 254 Texas counties durin	nunting	, by
ı	Aurora Scatter -	Antarctica by Don	Aug	5	Harry Dearness Joe Ellis VK4AGL	VK4KW	Mar Jon	19	activating all	254 Texas counties during contest. Fewer than 80	g a Co	unty
ı	Richards VK2BXM Calculate Beam He	adings & Great Circle	Seo	27	Jack Files VK4.1F		Apr	59	covered 262	000 square miles in les	s then	SUFE 1 4R
ı	Distances by Fred	Robertson-Modie			Roy Jonasson VK Eric Lake VK4EC	ANE/ex VK4NG	Jan Nov	50	hours to acco	omplish the feat.		
ı	Cassette Log Prog Cornish VK2KCN	ramme by Nell	Mar	18	Wing Commande	r Keith McCarthy, DFC, K4DU	Nov	50	in 1984, 1	the club expanded the	"Arma	ollibe
ı	Cornish VK2KCN		14	9	AFM, AE, (Rtd) VI Lyle Patison VK2	AIII	Aug	15	Advances Lo	ecame known, to include the	ne state	10 85
ı	Delights of Home- Afterburner by Jo	hn Isaac VK3PL	May	-	Lyle Patison VK2 Tibby Scholtz VK	4HR	Mar	19				
ı	Diode Power Supp	ly Circuits by Bruce	Apr	18	John Thorley VK Stan Tonkin VK5	G/ex VK2SG	Mar Jan	25 23	national Arn	nadilio Runt They will	attempl	t to
ı	DSB/CW Transmit	ter for 80m by Drew	Mar	14	Norm Tyes VK4T Mark Weston VK		Nov	50	activate ever	he group has even bigger nadilio Runt They will by county in the United St Huntere phone and CW	ates du	ring
ı	Diamond VK3XL	effections on Circular	May	18			8627	13	May and July	i: lo Ameteurs — August 1985.	COLMBBU	.6 '11
ı	Polarination by Da	vid Robertson VK5RN	.,			S & RECEIVERS			From 73 for Rad	lo Ameteurs — August 1985.		AR
ı	Emergency Solder	ing Tipe	Dec	14 R	Delights of Home Afterburner' by J	Brewing The	May	9				
ı	to Aircraft by Gor	HF Signal Levels due don McDonald	OCI		DSB/CW Transmi	itter for 80m by Drew	Mar	14	POLYCHL	ORINATED BIPHEN	4YLS	
ı			Jun	23	Diamond VK3XU	Chan Hann	Ang	17	The seriou	s health hazard represent	ed by c	con-
ı	VK3AOH	erds by Roy Hartkopf			Amplifier by Lloy	d Butler VKSBR	_		tact with po	is health hazard represent plychlorinated biphenyls	(PCB)	has
ı	Etching Circuit Bo VK4ABV	erds by Bevan Hay	Aug	17	TCA 1675/1677, A Amplifier by Lioy VKS Low Noise 2s Craig Maisland VI	m Preamplifier by	Feb	8	This man-ma	ned several times in this ade chemical was widely	magaz	ine.
ı	Feeder Tuned Anti	enna by Bruce	Nov	22			Feb	22	the 30s to the	e 70s, for such common a	pplicate	юпа
ı	Hannaford VK5XI Folded Element Co	Illnear Antenna for	Jan	10	to November Arti Ynesu FT-480R 2s		Aug	19	as oil tilled	capacitors and transform very large industrial trans	iers, th	989
ı	2m by Desmond G	reenham VK3CO able Dipole by Bob	hon	16	Medification by 9	ara Pascoe VK&SP	-		fluorescent I	amps capacitors, it was	only a	B B
ı	Slutzkin VK35K	able Dipole by Bob	Jun		TRY THIS				result of a se-	ries of human disasters the in some countries) of this	at led to	the
ı	Half Wave Broadb		Nov	14	248V SOHz Meter	he Sten Widows	Sep	21	hazard: PO	6 compounds can be	absor	bed
ı	High Frequency R	adar & the Australian serator by Ian Hunt	Apr	8	VK3SE				through the	skin or ingested (since in n food chains), and it has t	t doss	not
ı	Amateur Radio Op VK5OX	erator by Ian Hunt			Emergency Solds	oards by Bevan Hay	Dec Aus	14	with liver o	ancer, deformed babies	and s	skin
ı	Home-Brew Regul	ated Power Supply by 3CO	July	20	VK4ABV		-		diseasas. R w	vas not until 1977 that man	ufacture	re of
ı	Des Greenhaus VK	ommodore Symbols by	Mar	202	Power Supply An	nmeter by Arthur	Jul	6	Such compo	cals was abandoned by Brounds provided excellent	insulat	ms.
ı	Vicki Maradeo VK	2EVM			The Gee Knot by	Errol Chick VK3GG	Oct	49	and coolants	and reduced fire hazards	, and w	ere
ı	IARU Locators by	M O'Hare VK2ZQD	Dec May	10 20	Yaesu FT-490R 2: Modification by 9	a Transceiver ion Pascoe VK6KSP	Aug	19	much cheaps	er than the silicones now ce this dangerous material	commo	only
ı	Harold Hepburn V	K3AFQ				THE PARTY OF THE P				ounds are still likely to b		d in
ı	Location of Geosta	ntionary Satellites	Jua	9	WIA NEWS				large high v	oltage transmitting capa	citors i	and
ı	Computer Progra Hepburn VK3AFC				Age Limits to be	Removed	Oct Eeb	5	transformers.			
ı	Modifications to V	d Hepburn VK3AFQ K3BFG RTTY-Morse	Jun Feb	10 23	CISPR	r r requesiones	Dec	5	Precaution	is should be taken when d of leaky oil filled transfo	ealing v	with
ı	Article from page	16, January	Feb	10	Fee Increase	es Discussion Paper on	Oct Nov	5	canacitors un	dess it is known for sure I	hat they	n do
ı	Ned Cornish VK21	16, January gramme for C64 by CN							not contain t	this chemical British ame YF commented 'Recent	iteur Bi	rian
ı	Murphy v Mosley	by Allan Doble	Feb	18	IARU Region III (onference	Nov	8	across a le	saking transformer and	wonde	bered
ı	Power Supply Am	meter by Arthur	Ani	6	Import Duty	OBSERVACE 1900 Annuous	Sep	8	whether it w	as necessary to dispose of	of this v	with
ĺ		MHz by Lloyd Butler			International Tra	rel Exchange	May	12	following les	An industrial chemist sug	se of F	PCB
ı	VK5BR	OF MARK MARK THE THREE	Dec	22	Mexican Earthqu	ake Disaster	Nov	8				
ı	Shift Light for Med Bruce Hannaford	chanical RTTY by	Apr	17	Phone Patch		Oct Oct	8 5 5 7	Barne become	flame and burn off all di ses clear Allow the wire to	cool Di	fine fi dik
ı	Solar Electricity -	- how does it work?	Nov	73	WARC-ORB (I) Co	mpietes its Work	Nov	7	in the oil. Re	eturn the wire to the gas	flame.	lf it
ĺ	reprinted from Ra Solar Powered Ho	use & Amateur Station	Nov	24	MICEN				green, then	it is ordinary oil. If it be these compounds are pro	s vidade	nro-
ı	by Kevin May VK5	IV/YB9ARZ			WICEN	E 4 10 0 H		50	sent. It is not	a 100 percent positive les	t. buf if	the
ĺ	Graham Wiseman	n Anteona Gain by VK5EU	Ang	12	Earther to RAYN	Federal Co-Ordinator ET Article	Ang Jan	39	that the oil	bright green it will be wise contains the compound	to assu	ime am
ı	Some Thoughts on Harry Voake VK3	RF Oscillators by	Mar	12	Maryborough Bu	sh Fires by Gooff Smith	Mar	42	accordingly,	as it is better to be sale that Bon Cook VK3AFW, from Rac	n sorry'	1
ĺ	Spurious Transmis	sion Checker by	Jul	21	Midland Zone		Aug	50	Contributed by 1982.	Han Look VX3AFW, from Rac	Comm	July

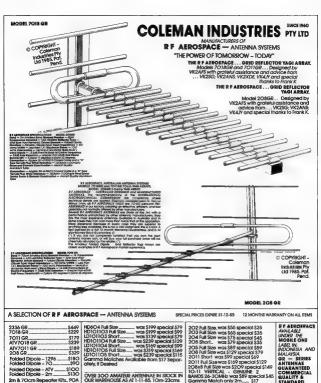
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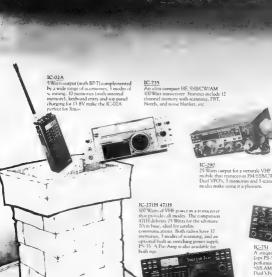
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BASIC METALWORKING - "CHASSIS BASHING"



Drew Diamond VK3XU Lot 2, Gatters Road, Wongs Park, Vic. 3115

Have you ever wanted to have a go at an electronics project, but have been discouraged by electronics project, but have been discouraged by the metal: working prospects? Nowadays, there are plenty of handsome factory-made cases avail-able, but their cost can sometimes be a bill prohibitive, especially for the poor student With a few tools, and a little skill, it is possible to make some very presentable boxes to house you projects. Firms such as Alcan and Comalco sel

sheet aluminium by weight, so the amateur can buy a selection of off-cuts at reasonable cost. An investment in good tools is never wasted money, for they will hold their value, and prove their worth, time and again. It is the intention of this article to describe the use of some basic tools. and Jlustrate the fabrication of a simple box for a QRP transmitter project.

Of the hundreds of different files available to the

amateur, we only require about three or four types antateur, we only require about time. These would at first to carry out basic operations. These would include a "flat" second-out file for finishing straight include a "flat" second-out file for finishing straight file. edges, and removing burs, a round or 'rai-teil' file for enlarging holes (but see later), and a half round, for finishing meter holes and the like Never use a file without a handle, as there is always the danger of "spearing" oneself with the pointed

DRILLING Some kind of drill is essential. For radio and

Some kind of orall is essential. For ratio and electronic work, a manual 'egg-beater' type at fine, and allows firm control over the drilling operation. A set of twist drillis, ranging from 1 8mm (½,4°) to about 6.4mm (¼,1°) will be found satisfactory for most work. Avoid cheap drills, as they blunt and bend sasily, and are therefore not economical in the long term Before a hole is drilled, the spot should be

marked with a centre punch to prevent the drill rom drifting, and when drilling holes of more than about 3mm in sheet metal, a small pliot hole, of about 1 8mm should be made first to prevent drift When a hole is completed, the burns should be removed with a counter-sinking bit, or a drill of larger diameter than the hole. To prevent damage to the workbench, a scrap of wood should be placed under the work during all drilling oper-



hand reamer

One of the bandlest tools for the sheet metal worker is a tapered hand reamer For holes of greater than about 6mm, a hole of that diameter is drilled first, then carefully enlarged to the required diameter with the reamer. It produces a rounder and smoother hole than can normally be obtained ith a drill and/or round file

For making larger holes in sheet aluminium, a set of hole-saws is ideal. They are rather expensive however and must be used in a drill press with the work firmly clamped, and goggles worn by the operator This operation is not recommended to the beginner, but is mentioned here for future use se ekill and confidence incresses





emers 5. Nibbler 6. "Egg Beater" Drill 7. Files - note the handles.

CUTTING

The hacksaw is useful for cutting small areas of sheet metal. A blade with at least 24, and preferably 32, teeth per such should be used. A not so well-known device is the Abraffle, which fits into a hacksaw frame. Being a toothed rod of small diameter, it is more manoeuvrable than an ordnary hacksaw blade, and so is useful for making odd shaped holes in sheet material.

The 'nibbler' has become very popular. It is a sort of manisture guillotine, and is useful for cutting round and square holes in sheet metal up to about 16 gauge.



RENDING

There are one or two amateur type benders available, but probably not worth the investment if only small projects are planned. With a selection of Lesction angle iron of different sizes, a vice, hammer, and some scrape of wood, it will be possible to make boxes of reasonable quality.

NORT A TROOP

1 Out out sheet to the required size. Fett-tipped pen stain will provide a background for certifing the marking out lines pex of the out-outs, 2. Drill a 2mm hole at the spex of the out-outs, as shown. This allows the bends to be done without crushing at the meeting edges. Nibble hackses with 90 degree out-outs. Smobil the edges and remove burrs with a flat file

S Sandwich the narrow edge of the job in a vice between two lengths of angle iron G-clamp the ends together if the job is significantly longer than can be accommodated by the vice Apply & block of wood to the edge to be bent, and with a hammer, carefully dress the metal to a right angle. Do the same with the other side



right angle.

4 Select, or cut, a piece of angle iron to fit into the bends which will form the front and back panels of the linished box. The metal is dressed to panels of the linished DOX I no mean to second term a right angle for these two bends as for step



The bent body of the chassis.

Carefully measure the width and height of the front and back panels now formed. We can now cut to size, mark out, and make a lid to suit. The height of the lid will have to be about 3mm greater than was actually measured, and this should be sllowed for in the marking out. Test the lid on the box after making the first bend. This will allow you to make the second bend in pracisely the right place Irrespective of the marking out line

are name pace interspective or the marking out line, so allowing for any inaccuracies that have crept in. 6. With the lid complete, mark out where the securing screws are to be placed so that self-tappers may be inserted into the folded up edges formed in step 3. Drill the holes in the lid. It will now be possible to put the lid in place and mark the soots where holes must be drilled to take the screws These should have a diameter equal to about 3/5 that of the screws

wice Notes: (Ron Cook) AR August 1980 (tie Boxes" AR May 1979. dio Handbook. (Bill Orr).



Oh! the satisfaction of building your own atuminium box.

TRIVIA DEPARTMENT
WHY???
40 motres is 7 496MHz (outside the bend)
20 metres is 14 993MHz
15 metres is 19 990MHz (outside the bend)
10 metres is 29 985MHz (gutside the band)
6 metres is 49 975MHz (outside the band)
2 metres is 149 925MHz (outside the band)
And, the WARC bends
30 metres is 9 995MHz (outside the band)
17 metres is 17 638MHz (outside the band)
12 metres is 24 986MHz (just INSIDE the band)
Check them! The speed of radio waves is 299 851 km/
sec or 186 319 miles/sec lone mile equals
1.60934km)

Contributed by Mervyn Europe VK4SD

THE RADIO PHONETIC ALPHABET

Maxwell Hull VK37S WIA Federal Historian

Phonetics is the doctrine of sounds, the science which treats of the sounds of the human voice and the art of representing them by writing. It pertains to the representation of sounds and it is this aspect which interested early 'wireless operators' in making clear to the receiving parties those words (or figures) in the transmission which were difficult to understand because of weak signals. fading, atmospherics, electrical interference, interference from an adjacent transmission (even sometimes from a harmonically related band!), poor audio response in the modulation equipment or a poor quality microphone, or just plain inability of the operator to articulate clearly for one reason or another.

ż



Whisky William Washington X-Ray X.Ray Xantippe Ennkee Walen Yokohama Zulu Zebra Zunch The Geneva Regulations still permitted

individual countries to use any other phonetic alphabet recognised by their own administration for communication between themselves

The first column is the NATO/ICAO phonetics adopted at Geneva with the syllaples emphasised in heavy type, then the well-known Able-Baker-Charlie list which is still used between British ships and British coast stations, and finally the third column lists the cumbrous words which had been approved at Atlantic City and which were used until the Geneva Regu at ons were introduced Amateurs have tended to use some phonetics from

all three systems. The method of identifying numerals 1 to 0 respectively utilises the first ten words of the Geneva list. (Alfa Bravo, Charlie, Delta, Echo, Foxtrot, Golf, Hotel, India, Juliet); and that of 'comma', 'fraction bar', 'break sign' and 'full-stop' the next four letters (Kilo, "Ima, Mike November) When transm tting figures they are preceded and followed by the words "as a number" spoken twice. As an example the figures 1985 would read "as a number as a númber, Alpha India Hotel Echo, as a number as a number". The method of identifying numerals in this way is not used by operators in British ships and coast stations. The GPO "Handbook for W reless Operators" gives the following rules for the pronunciation of numerals -

O - zero; I - wun; 2 - too; 3 thuh-ree; 4 fo-wer: 5 - fi-vuy: 6 - six: 7 seven: ate; 9 - niner.

Each transmission of figures is preceded and followed by the words - "as a number" spoken twice. Amateurs usually don't follow that part of the procedure. There is no adamant compulsion for amateurs to specifically use the Geneva

endorsed phonetic alphabet but it assists to be This is Victor Kilo Thuh-ree Zulu Sierra signing off This is a number this is a number, Sierra Charlee, this is a number this is a number" Ditdahditdahdit.

1947 at the Atlantic City conference of the International Telecommunications Union a phonetic alphabet was incorporated which proved to leave much to be desired. Thus by the 1956 Geneva Conference of the ITU it became necessary to use up a lot of hours deliberating on the problem. The result was the adoption of the phonetic alphabet which had been used by NATO Forces and civil airlines prior to this Conference. When the Geneva Regulations came into force in May of 1957 the following approved phonetics came into general use. Alfa Až Bravo. R Charlie Delta ñ **Scho Fourteet** Fa Colf G

H

Ite

Fee

Ki

lo

846 November

N

 α

Pe

Str

Tai

One could probably trace the necessity for the

use of phonetics back to when man first

commenced to communicate by the spoken word

(or grunt!). It certainly would have been used

occasionally by public speakers in bad acoustic

conditions before amplification of the voice

In the early days of 'wireless' operators used

whatever word seemed suitable to make clear the

meaning of that part of the context of their

transmission needing clarification. Hence, around

the amateur world in particular, a somewhat of

a 'hotch-potch' of words came into use not all of which were necessarily good.

The problem didn't escape the world

Governments responsible for the developing

communications in their respective countries. In

became possible.

Hotel

India

Italiet

Lima

Papa 0 Ouebec 0

> Sierra Tango

Victor

K KBo

M Mike

0 Oscar

á Romea Ro

£. Uniform 14

ung appro	vea prioriet
ide	Amsterda
ker	Baltimore
iarlie	Casablani
DE .	Danemari
ro Br	Edison
×	Florida
corpe	Gallipoli
36V	Havana
101	Italia
	Jerusalem
ng ng	Kilogram
ve ve	Liverpool
ike	Madagasc
in n	New York
boe	Oslo
fer .	Paris
veen	Quebec
ger	Roma
gar	Santiago
u6 Dec	Tripoli
ncle	Upsala
ctor	Valencia



AMSAT

AUSTRALIA

Colin Hurst VK5HI 8 Arnde Road, Salisbury Park SA 5109

OSCAR-1Ø APOGEES DECEMBER 1985

DECEMBER 1985								
	SATE	LITE	T		BEAM HE	ADTINOS		- 1
APOGE	E CO-ORD	INATES	100		ADEL	AIDE		RTH
DAY ORBIT U.T.C		LON	AZ	EL	AZ	EL	AZ	EL
# # HHMM:S	S DEG	DEG	DEG	DEG	DEG	DEG	DEO	DEG
1st December 235 1857 #9#2:3	6 -24	215	329	76	28	76	26	59
2nd December			-					
336 1859 #821:3: 3rd December	8 -24	286	15	78	55	78	86	56
337 1861 #748:4 4th December	1 -24	197	58	73	78	62	92	41
338 1863 8659:4	3 -24	197	68	65	79	53	76	32
5th December 339 1865 8618:4	6 -24	178	78	56	86	45	199	24
6th December 348 1867 8537:4	9 -24	168	93	48	92	36	184	15
7th December 341 1869 8456:5	4 -74	159	91	39	97	78	189	
341 1878 1636:2		334	71	37	77	28	249	4
8th December 342 1871 Ø415:5	6 -24	149	76	3.6	181	19	113	a
342 1871 Ø415:56 342 1872 1555:20 9th December	8 -24	325					253	11
943 1873 #334:5	9 -24	146	1.66	22	186	12		
### 1874 1514:3: 18th December		315			248	2	257	28
344 1875 8254:8		131	195	14	111	4		
344 1876 1433;3: 11th December	3 -24	3#6	246	-1	232	9	261	28
945 1977 @213:# 345 1878 1352:3		121	189 256	6	116 252	-8 17	266	37
12th December				_	237	47	200	37
HWA 1979 Ø132:Ø1		112 287	114 255	-1 14	261	25	278	45
13th December 347 1882 1236:4:		278	259	22	266	22	1775	54
14th December				_		-		
MWH 1884 1149:4		268	264	38	271	42	283	64
MMM 1886 1188:4	-25	259	268	39	277	58	296	72
1888 1827:5: 17th December	-25	250	274	46	295	59	226	86
351 1898 8946:5	6 -25	248	288	56	297	68	27	88
18th December 1892 2985:5	9 -25	231	298	65	319	75	62	74
19th December 353 1894 £825:£.	-25	221	387	22	1	78	76	65
28th December 354 1896 \$744:84		212	343	29	42	75	84	56
21st December								
355 1898 9793:50 22nd December	5 -25	292	33	77	44	67	98	47
356 1900 0622:11 23rd December	2 -25	193	ΔL	71	76	59	94	38
35/ 1982 8541:14 24th December	-25	184	74	62	84	58	99	29
358 1984 8588:13	-25	174	63	54	98	42	183	21
25th December 357 1986 8419:11	-25	165	97	45	95	33	197	13
359 1987 1558:5. 26th December	-25	34ø					246	-1
368 1986 8338:23	-25	155	94	36	99	25	111	5
368 1989 1517:5: 27th December		331					258	7
361 1910 0257:2. 361 1911 1436:5	7 -25 3 25	146 221	99	28	184	17	810TE	-2 15
28th December							2.59	13
362 1912 Ø216:38 362 1913 1356:#	-25 -25	137 312	183	28	1.99	9	258	23
29th December 363 1914 Ø135:33	2 -25	127	197	12	113	2		
363 1915 1315:0- 30th December		392	247	2	253	12	262	31
364 1916 8854:35	-25	119	112	4				
364 1917 1234:5: 31st December		293	251	1.0	258	28	840	48
365 1918 8813:3: 365 1919 1153:8		168	117	3	262	28	271	
4747 4133:81	43	204	236	47	202	20	2/1	

NATIONAL CO-ORDINATOR Graham Ratest? VK5AGR INFORMATION NETS

AMSAT AUSTRALIA
Control, WSAGA
Amateur Checkin 1995 uTC Sunday
Bulletin Optimences, 1000 uTC
Wildlight 3 855 MHz Suntimer 7 054 MHz
AMSAT PACIFICE

Control JA1ANG 1100 UTC Sunday 14.305 MMr

AMSAT SW PACIFIC 2200 UTC Setunday 21 280/28 878 MHz

Participating stations and listeners are able to obtain basic orbital data including Kepterian elements from the AMSAT Asial alie net This information is also notuded in some WIA histograph Repartners.

ACKNOWLEDGEMENTS

Contributions this month have been from Bob VK3ZBB and the ever reliable UoSAT Bulletins.

UOSAT BULLETINS

in recent weeks Bulletins have commenced publication on the UoSAT-2 (OSCAR 11) in add tion to OSCAR 9 Albeit of slightly different format they are an excellent addition to the service provided by the University of Surrey.

GSRUH COMPUTER PROGRAMMES.
Jam Miller GSRUH, known worldwide for his
excellent series of articles in Wireless World, has
also written some excellent computer ordinare
related to spacecraft orientation, eclipse celcuistions, etc bro SCAR 10 Although written the
BBC computer, in BBCGABIC, they are say,
Models I and S. and CPMB have already been

made
For those Interested in the complexities of spacecraft attitude determination, an SASE to Genham WSAGM will provide a listing of those programmes evaluable for genham letters.
FUTURE SATELLITES FOR THE 808
The following from was posted on a recent Lock The following from the same state of the s

from Amateur Satelitte Report (ASR)
GEO-SYNCHRONOUS SATELLITE SYS-

Progress is being made on severa, fronts towards a geo-synchronous amateur radio satellite capability, according to AMSAT The geo-synchronous satellites, ohen called Phase 4 satellites, have

been the subject of keen interest recently as a result of several unrelated developments. These developments were said to be three-fold. First was the recent National Aeronautics and Speak Administration (NASA) unnouncement of tis Advanced Communications Technology Satel-

like (ACTS) Programme, and the suggestion that it could conceivably include amateur radio interfaces. Second, it was recently learned, by W3GEY that there is a possibility of AMSAT flying its own

that there is a possibility of AMSAT flying its own transponder/s aboard the ACTS spacecraft Thirdly, Arianespace has told AMSAT it is currently developing a so-called "piggy-back" pricing policy for small payloads on its Ariane 4

Thus, according to these officials, there are three avenues to a Phase 4 system currently sender active study

under active study.

An ad hoc AMSAT ACTS study group suggested ACTS was n fact out of reach of AMSAT The group thought the 30/20GHz uplink/downank.

combination and the very high speed digital switching involved would tax our technical resources beyond the projects worth. While no one

was willing to say 'impossible', several pointed to

other projects and noted that all available to sources would have to be devoted to ACTS at the expense of most other development activities. The cost in these terms, the group seemed to say, would be too high. On the other hand, a number of the AMSAT ad noc ACATS study group suggested that ACTS offered an excellent possibility for

way access to a geo-synchronous spacecraft AMSAT is seeking individuals to work on a proposal to this effect end has dubbed this access. to the geo-synchronous capability the P4A1 option

(Phase 4A, option 1).
The launch is currently slated for fourth quarter, 1988 according to W3GEY

W3GEY reported that he received cautious encouragement from NASA and RCA. A preliminary concept would place a Mode L and a Mode S. transponder aboard the ACTS payload AMSAT's transponder would advantage itself of conditioned

power, station keeping, and thermal control provided by the host AMSAT would provide transponders, control, and its own antennas. The antennas on ACTS appear unsultable for any antennas AMSAT might

U88. The key incentive for including AMSAT aboard ACTS, barring any fundamental technical constraints, was for NASA to perceive a positive technical innovation and a public service aspect to any such proposition. Thus, AMSAT is now solicitno concrete suggestions as to how amateurs might benefit society either directly through communications services or indirectly through techno-logical innovation in connection with ACTS — we should be mindful of the nature of ACTS, that is, it is a communications technology experiment. An ACTS proposal team is to collect ideas and codify them in the form of a formal proposal to NASA

According to preliminary concepts discussed by W3GEY and WA2LQQ, three types of service might be provided by the Mode L and S transponders. First would be a Mode L ...near transponder, similar to that on AO-10 and Phase 3C. Second would be a packet radio repeater, or perhaps even packet switch. Finally, a third service might Include a capability to both link selected terrestrial repeaters and group address repeaters for bull-stins, training, educational materials, and, of etins, training. course, emergency communications on a hemi-spheric basis. Given the opportunity, AMSAT might also propose a more ambilious amateur C-Band transponder, as well. The suggestions by W6KAG were made, based

The suggestions by W6KAG were made, based on his examination of the NASA ACTS documents, and on his independent contacts in the space industry. It was W8KAG who established that there might be payload accommodation sufficient for AMSAT's interests. The idea of placing an amateur radio transponder aboard a commercial, or scientific geo-synchronous spacecraft has been discussed by AMSAT for nearly a decade, and builds on the SYNCART (Synchronous Ameteur Radio Transponder) con-cept of AMSAT Canada and Project OSCAR More recently, a proposal was made by Cablesat General of Florida, and its President, WA4OHK, to place a C-band amateur radio transponder aboa a proposed commercial spacecraft The FCC recently eliminated Cablesat from competition for the orbital slot in which Cablesat was to place its

AMSAT will be working this possible Phase 4 option as its P4A2 option Concepts for use may be sent to AMSAT President, WA2LOQ, PO Box 177, Warwick, NY. 10990. Similarly. individuals sted in writing portions of AMSAT's proposal to NASA, or in participating in a proposal team should contact WAZLQQ by mail at the same address

A third avenue to a geo-synchronous system could be a two satellite system launched by an Ariane 4. Arianespace is known to be working on Anane 4. Arianespace is known to be working on a low-cost, "piggy-back" system which seems ideally suited to carry an AMSAT payload to a geo-synchronous transfer ellipse. A two-satellite system with one placed over the Equator at 47 degrees west, and another over 148 degrees west, would provide coverage for virtually all of North America to Western Europe, and most of Africa on he eastern satelfite (AMSTAR East), and most of North America to the Pacific Basin, including New

SATELLITE ACTIVITY FOR PERIOD 1 AUGUST TO 29 AUGUST 1985

1._LAUNCHES.

The following Launching Announcements have been received

1985 064A	Cosmos 1678	Aug 1	USSR	
1985 065A	Cosmos 1671	Aug 2	USSR	
1985 066A	Oscar 24	Aug 3	USA	
1985 066B	Oscar 30	Aug 3	USA	
1985 - 067A	Cosmos 1672	Auu 7	USSR	
1985 068A	Cosmos 1673	Aug 8	USSR	
1985 069A	Cosmos 1676	Aug 8	USSR	
1985 070A	Raduga 16	Aug 8	USSR	
1985 071A	Cosmos 1675	Aug 12	USSR	
1985 072A	Cosmos 1676	Aug 16	USSR	
1985 073A	Planet A	Aug 18	Japan	
1985 074A	Molniva 1-64	Aug 22	USSR	
1985 075A	Cosmos 1677	Aug 23	USSR	
1985 076A	STS-511	Aug 27	USA	
1985 076B	Aussat 1	Aug 27	Australia	
1985 076C	ASC 1	Aug 27	USA	
1985 076D	Syncom IV-6	Aug 29	USA	

Notes on these satellites. -

Cosmos 1678

Cosmos 1679

1985 077A

1985 078A

Planet A was launched by the Institute of Space and Astro--nautical Science (ISAS) from the bagoshima Space Center, Japan. The spacecraft is cylindrical with a 1.4 meter diameter and 0.7 meter height and weighs 139.7 kg On board is an ultraviolet imaging camera to observe the hydrogen corona around the come of the comet Halley and an energy analyser of ions and electrons to measure solar wind and probably cometry charged particles. The spacecraft transmits on 2293 89 MHz with 0.07/5 Watts with coherent/non coherent modes for ranging/telemetry The orbit parameters are epoch 04h 10m 32s Aupust 22, 1985(UTC). incl'n 0.888°, perihelion 100.480 million km, aphelion 151.467 million km, period 282.2 days. The closest encounter with comet Halley will be 1256Z March 8, (986, distance 211,000km.
The spacecraft is now renamed "Suise!" (the Japanese for comet)

Aug 29

Aug 29

ITHER

1.550

STS-51| orbit elements were period 92.0 min, incl'n 28.5°, apogee 385 km, perigee 355 km.

On board were J.H. Engle, R.O. Covey, J.D. van Hoften, W.F. Fisher, and J.B. Lounge, Payload included Aussat 1, ASC 1 and Syncom IV 4, This Discovery mission also included the repair of a fuel laden Leasat satellite.

2. RETURNS

During the period fortythree objects returned or decayed including the following satellites

		OPS 9627	Aug 13
1983	102A	Cosmos 1502	Aug 29
1985	039A	Cosmos 1654	Aug 7
1985	062A	Cosmos 1669	Aug 30
1985	063A	STS 51F	Aug 6
1985	065A	Cosmos 1671	AUG 16
1985	067A	Cosmos 1672	Aug 21
	1983 1985 1985 1985 1985	1982 111A 1983 102A 1985 039A 1985 062A 1985 065A 1985 065A	1983 102A Cosmos 1502 1985 039A Cosmos 1654 1985 062A Cosmos 1669 1985 063A STS 51F 1985 065A Cosmos 1671

3. GENERAL,

1966 100A ATS I was located at 133.120 West at 1305 UT on Aug 15, 1985 Inclination 11 872"

a SASE sent to VK3ZBB. QTHR.

1984 033A Cosmos 1547 and 1984-107A Cosmos 1604 are reported to have bearons operating on 2304 MHz Both satellites are in range of Australia and the South Pacific for several hours each day. Updated Keplerian Elements are available for



OSCAR-1# APOGEES JANUARY 1986

			SATELLITE		I BEAM HEADINGS				1	
		APOSEE	CO-ORBI		SYD		ADEL			RTH
	ORBIT	U.T.C	LAT	LON	AZ	EL.	AZ	EL	AZ	EL
40		HHMM:SS	DEG	DEG	DES	DEG	DEB	DEG	DEB	DEB
1st	Janua									
366		1112:14	-25	274	266	25	267	37	277	58
2nd	Janu									
	1923	1031:16	-25	265	264	34	272	45	295	67
3rd	Janu									
		8958:19	-25	255	269	42	278	54	381	76
4th	Janu	ary								
		8989:22	-25	246	275	51	287	63	346	82
5th	Janua									
	1929	#828:24	-25	237	282	68	361	71	42	29
6th	Janu.									
	1931	8747:27	-25	227	293	67	330	78	71	71
7th	Janua									
		8796:32	-25	218	315	76	26	78	B£	62
eth	Janua	8625:35			2	200				
	Janua		-25	299		-	54	73	88	53
		#344:37	-26	166	48	76	71	65	92	44
Isti		ary	-20	144	40	76	71	60	9'8	99
		4543144	-26	198	49	48	900	76	97	25
11t)		ary	-20	140	87	-	_	20	77	30
	1941	8422:42	-24	196	79	59	87	47	191	26
124		ary	-40	100	77	99	87	47	19.	20
	1943	Ø341:48	-26	171	84	51	92	39	1975	18
131		ARTY	-20	474		21	92	27	180	40
	1945	0300:56	-26	161	92	42	92	38	169	16
	1946	1449:21	-26	337	72	-92	**	-	247	3
141		THAM. ST	20	447					247	
	1947	0219:33	-26	152	76	22	182	22	113	2
	1948	1359:24	-26	327	76		add.	22	251	18
	2. 10		20						201	

Zealand Eastern Australia and Japan would be on the western satellite (AMSTAR West). Further trade-offs could be made in coverage and a terrestrial relay might be invoked to allow double-hop communications such that Australia, for nop communications such riss Augustass, ion instance could work England AMSAT is working this option as P4A3. W3GEY and WA2LOQ were planning to discuss these options at the Space Symposium and Annual General Meeting on 9th Movember Le Well Cohardo, and the following day. November, In Vall, Colorado, and the following day with AMSAT's Directors. Comments and sugges tions are soucified. However, neither AMSAT's officers nor its direc-

tors are precisely certain what is in the greater interest of its members, and the amateur radio

community, for future projects.
The view from AMSAT DL is that a follow-on to Phase 3C next summer should naturally be phase 3D, a 12 scale version of Phase 3C with a super power Mode L transponder aboard (in the 200 to 300 watt class). Meanwhile, JAS-1 will be launched next summer, as well AMSAT UK and SA AMSAT are both interested in satellite projects with the latter now supporting the Mode S transponder project of Phase 3C. AMUAT-ORCAR-10 **OPERATIONS**

(ZL1AOX) A new Mode B transponder schedule was put in place on the 17th October. A review of this schedule was to be considered about the 12th

Anadilina 1900	111011	au prillaggina is
MA 055 to 119		Mode B
MA 120 to 136		Mode L
MA 137 to 203		Mode 8
MA 204 to 239		OFF
MA 240 to 019		Mode θ
MA 020 to 054		OFF

The main reason for this schedule is to reduce the continuous Mode B time during poor sun angles, which will occur again when the attitude in moved to LON 185, LAT -2. This started on 20th October It will also give the Northern Hemisphere stations the opportunity to work during peripee passes. I request that during perigee operation, and also when AO-10 is criented at 185, -2 that stations please reduce their power so that the are not more than one S point above the General

The present attitude is approximately LON 165 LAT -26 degrees, which means that when stand ing behind the S/C at apogee looking towards the he S/C at apogee looking towards the Earth, the S/C antennas are pointing to the right 15 degrees, and upwards towards the Northern there 26 degrees. All systems seem normal in the S/C at present

Operators should monitor the bulletins on the General Beacon of Mode B, 145.810MHz, for the latest developments

The following item is presented after the event so to speak, however, from an historical point of view, it is extremely well worth presenting.

MANNED MISSIONS During the seven-day Spacelab Mission D1, in

October 1985, the science astronauts R Furrer DD6CF E Messerschmid DG2KM, and Dr Wubbo Ockels PEILFO operated an amaleur radio station, located in the Spacelab on board the pace Shuttle COLUMBIA - the call sign being DPGSL. The amaleur activity started on day three nd continued until 12 hours before landing Therefore, five days operation, with astronauts active as radio amateurs in there (free)

TECHNICAL INFORMATION

The station on board the Spacetab consisted of the following lights: VHFTUHF Transceiver, Antenne, DC/DC Converter, Various Cables, Headset Container with 10 micro-cassettes.

The VHF/UHF transceiver is a special development, designed and constructed by specifications, and using components out of the normal mobile transceiver programme of Bosch PIF power output of this transceiver is 10 walts, which is reduced to one walt for automatic (beacon) operation. Frequency range of the transmitter is 144 to 146MHz with F3e (FM)

The receiver is a double-suc receiver, frequency ranged from 430 to 440MHz. Sensitivity for S+N/N=12dB is 0.45 microvolts. Selection of operating frequencies is provided by a ROM, programmed for four VHF transmitting frequencies and six UHF receiving frequencies, within a 25kHz channel spacing. The transcrive is provided with a built-in micro-cassette recorder.

The antenna was designed and constructed by a group of radio emateurs at the antenna laboratories of the University of Bremen. This special antenna, which was mounted outside the Spacelab, is an aluminium whip, approx mately 50cm in length. It shows quarter-wave resonance for VHF and ½ lambda resonance for UHF Electrical power (28V DC) was applied to the transceiver from the Spacelab utility power i nes, via a DC/DC converter, to provide line isolation

from ground, for the Spacelab power lines. SEASONS GREETINGS

Perhaps it is a sign that I am getting older at a faster rate, because it only appears that last Christmas was just ast week Nonetheless, may let

offer Seasons Greetings to all the readers of this column and trust that the year to come will provide you with all the pleasures that you missed out on de Coi n VK5HI

KNOW YOUR SECONDHAND BOODMANT



Perhaps one of the more famous of the

Yaesu transceivers. First arr ved in Austra a in mid-1969. The 200 covered amateur bands from 80 to 10 metres in 500kHz segments, but only 28.5 to 29MHz was provided as standard for the 10 metre band. The circuit was a single conversion set-up with a 9MHz IF and tubes were used for most functions. However, like the FTDX-400, transistors were used in the VFO and other ancillary circuits. Unlike the FTDX-400, the 200 did not have a built-in power supply AC and 12 volt DC power supplies were available as optional extras. Most were so d with the AC supply but many amateurs built their own There are three models of the FT-200 The original can be identified by the dummy switch between the meter and tuning a a. The knob is there but no switch behind the panel. The second model had the internal/external VFO selector sw tch in this same position and the third model was in an all black colour scheme. The earlier models had a silver front pane and a grey cabinet. Many modifications were published in AR over the years and I would have to say that most were

quite unnecessary If you are looking for a second hand FT 200 beware of one that has had lots of mods. The new price of the FT 200s var ed between \$400 and \$450 with AC power supply Second hand price tends to be variable. Late models with matching AC supply \$300 down to about \$175, for an early model, perhaps with a home bu-t power supply. Some home built power supplies are more of a liability than an asset A good ET 200 can perform very we indeed. Most of the tubes used are still easy to obtain and the FT-200 can be recommended as an excellent rig for the beginner



CONTESTS



CONTEST CALENDAR

24-26

18-11

19

ARRL 160 metre Coniusi ARRL 160 metre Contest ARRL 10 metre Contest Bres Hull Mamorual VHF Contest begins (Rules October AR) I IBA SWI. Competition 1985 (Rules

October ARI JAHUARO JBA SWL Competition 1985 (Rules October AR) Bree Hull Mamorial VHF Contest

YOUR HARES xxxxuoes Michigan ORP Club CW Contest Hungarian DX Contest
White Rose SWL Contest (Rules this CO WW 160 metre CW Contest

metre World SSB Championship 75 metre World SSB Championship Contest MO metre World SSE Championship 15 metre World SSB Championship

20 metre World SSB Chempionship

FEDRUARY RSGB 7MHz SSB Conless RSGR 7MHz CW Conless 22-23 CO WW 180 metre SSB Contest

MARCH Commowwealth Contest 1986 CW Contest (Tentative)
John Movie Memorial Field Day Contest

8- 0 8- 0 15-18 Denotes World SSB Championship Contests sponsored by 73 magazins. Rules for these contests appear in this issue

it would seem I ke a very busy start to the New Year with all the contests listed I would hardly imag ne that even the most dedicated contester would be able to enter all the contests listed. It certainly allows the "faithful" to keep themselves well occupied, and at the same time, provides a

wide variety of operations REMEMBRANCE DAY CONTEST

As I write these notes in October, all the logs have been colleted and sorted nio batches for checking, it is cartainly the most popular contest in VK and entails me in a fairly heavy workload. I had hoped to have the results completed for publication in this issue, however, the pressure of other matters has not allowed as much time as I would have wished I can certainly promise that, compietely unforeseen circumstances barred, the

results will appear in January's magazine.

As stated in my notes last month, the standard of log entries has certainly improved, however, there are still a number which leave something to be desired. Whilst it is not a perfect world, and I do not expect to see that situation ever occur, i cannot understand why some operators are just too downright lazy to mad the rules properly, and go to at least reasonable lengths to try to comply

It certain y was obvious, to the majority, that there were two categories, namely HF and VHE, in this years Remembrance Day Contest, and as this was the case, two totally separate log-together with separate front sheets should be provided

In an endeavour to try and indicate just where problems exiat I am considering taking the liberty of listing such problems and indicating against or realing such properties and recreating against particular entries where some shortcomings apply. This would be done not in an attempt to embarrass anyone, but merely to try to assist and encourage those prepared to submit entries to aprove their standard of entry incidentally, it may nierest some members, that

of 3rd October. The latest due date was 27th September I I Unfortunately, both logs were from rish stations, so it is anticipated members of the clubs concerned will express some dissatisfaction in the right areas about their logs not be submitted in time. In such instances I cannot, in all conscience accent such entries as being valid

I would not wish to limish my notes for this year on enything which sounds like a sour note. To that end. I wish to express my thanks to all who supported my efforts throughout the year, by entering the contests conducted by me, on behalf of the WIA, and I wish, in particular, to thenk those who took the time and trouble to write and express your opinions on contest matters, as well as make suggestions as to where things can be improved. heve said previously in this column, cannot undertake to answer all the letters I receive, but I can assure you, even though you may not receive a personal reply, your thoughts and comments are properly considered. There are times where I would find it most difficult, if not impossible, in implement completely the suggestions made in the position of FCM, I find there are not

always simple answers available, so I believe I must try and function in a manner which is fairest to the majority, and keep in mind the interests of amateur radio es a whole, not just look at things in solation. I most particularly appreciate the instances when members bring up matters concerning contests at Divisional meetings, or at their club. This promotes a wider discussion, than would otherwise be the case. I would encourage

an increase in this approach As far as I can see, 1965 has been a fairly successful year on the contest scene. I would like to think, with even more experience under m belt. I will be able to play my part to help make the

coming year even more successful
With the Christmas season coming, and an other New Year in sight, it is traditional that we look back over the past 12 months and review just what has occurred it seems, for some reason, to be easier to adopt a spirit of goodwill to others, as well as a happier outlook, at this time. I would, as I have done for some years now wonder why we cannot maintain such a healthy attitude night throughout the year. Perhaps I can say a word. through these pages, to encourage you to try and adopt such an approach, and, at the same time. remind myself to heed my own words and in-

I feel that we can learn quite an important lesson if we stop and look back over, not just over this past year, but rather to consider what has occurred during this last century. Without doubt, it has been a century of incredible advances in technology. Our current day capabilities in modern sciences, physics, and technology of all kinds are nothing short of amuzing, and who can say just how much further we can progress. I may ask though, whether we have really come from out of the dark ages. Just think about it briefly.

We have devised more scientific ways of devaslating the world, and all creatures that share this planet with us. Many of our new-found capabilities could be out to better use to benefit all

The point of my philosophising in this manner is that if we are to see a change for the better, it is up to us all, as individuals, to do something about it Just the way we live our daily lives can play a big part in making this a better world to live in. Need I point out, that we as amateur radio operators, with world-wide communications canability at our fingertips, have an amazing potential to influence things for the good and betterment of mankind. I make no apology for writing in this vein, as I

strongly believe every opportunity should be taken to try to better things, and that if every person tries to do some good, we must all benefit, as a result May I suggest that you all fall into the habit of

Ian Hunt VK5OX FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO Adelaide, SA 5001

wishing each person you come into contact with to 'have a nice day' (and maybe give them a smile). You will be amazed at the responses you receive Also let us carry this approach into our contacts on the ner with follow armste up

me ar, with review amarisars
I would like to take this opportunity to say,
"Have a nice day", and wish you, on behalf of my
wife and myself, a very happy and bleased
Christmas. May we look forward to a New Year of much happiness and peace in the world I would also wish that those away on holidays will have a pleasant and safe time. Drive carefully

on the roads, as accidents hurt many more than those directly muched Best wishes, and 73 -- lan VK5QX

WORLD SSB CHAMPIONSHIP CON-TESTS

These five separate contests are aponsored by 73 magazine for radio empleurs Fifth annual 40 metre test will be held from 0000-2400 LTG, 11th January 1986.

Fifth annual 75 metre test - 0000-2400 UTC, 12th January 1986.

Seventh annual 160 metre test - 0000 UTC 18th January to 2400 UTC 19th January 1986 scond annual 15 metre SSR test - 0000-2400

UTC, 25th January 1986. Second annual 20 metre SSB test - 0000-2400

UTC, 26th January 1966. BASIC RULES — Stations may be worked only once per event. All contacts must be two-way SSB. All stations may operate for the entire

contest period:
CLASSIFICATION — a Single operator, Single transmitter, SS8 only, b Multi operator, Single transmitter, SS8 on y
EXCHANGE — Stations with n the continental 48 US States and 13 Canadian Provinces or Territories transmit RS report, and State, Province, or Territory, Al others, including Alaska and Hawali, transmit RS report and ARRL DXCC

POINTS - Five QSO points for contacts within your own continent, 10 QSO points for contacts

your own continent, 10 GSO points for contents outside your own continent. MULTIPLIERS — One multiplier point is earned for each continental US State (48 maximum), Canadisin Province or Territory (13 maximum), or ARRIL DXCC Country fexcluding the US or SUGGESTED FREQUENCIES - 21 250-21 350

14 175-14 250 7050-7080 (DX) 7 175-7 250 (WVE) 3.760-3.790, 3.805-3.875, 1.830- 1.850-and 1.855-1.900MHz. (Austrelian amateurs note that some of these frequencies are outside our affocations FINAL SCOCOm RE — Total QSO points X

Multiplier points = the Claimed Score - Must molude Contest Log Dupesheet for 100 or more contects. List of Multiphers, and Summary Sheet as outlined below Be sure to include your SOAPBOX COMMENTS, and a black and white photograph for possible publication
SUMMARY SHEET — Must contain Contest Call

Sign ARRL DXCC Country, Station Owners Name and mailing address, List of Station Equipment and Antenna's, Operator's Class, Total QSOs, Total QSO Points parned Total US States Worked, Total Canadian Provinces/Territories trongs.
Total DXCC Countries Worked, Total Multiplier Points, and your Claimed Contest Score.

appropriate Contest Charman, and postmarked no later than 20th February 1986. Late entries will be registered as check logs DISQUALIFICATION -Usual disqual fication criteria applies. Stations disqualified this I me will

be barred from these events for one year

PENALTIES — A genalty of 100 QSO points will be assessed for each duplicate contact counted in

a contestants claimed score AWARDS - A minimum of 100 QSOs must be worked in an event to be eligible for a contest award Plaques will be issued to the World Championsh p Stations. Awards will be issued in each operator class, in each DXCC Country

CONTEST RULES AND FORMS Your own set of rules, and official contest forms, may be obtained from Billy Maddox KA6JJK/3, 1162

Bayview V sta Drive, Annapolis, MD 21401 CONTEST CHAIRMEN — 15 metres . Gary Vest WA3KCY, Star Roule, Box 34, Holliday, TX. 76366. 20 metres Chuck Ingram WA6R, 44720 N

11th Street East, Lancaster, CA, 93535. 40 metres . Dennis Younker NE6I, 43261 6th Street East, Lancaster, CA 93535.

75 metres . Ron Johnson KC7PA, 68 South 300 West, Brigham City, UT 84302 160 metres . Harry Arsenault K1PLR/4, 704 Curtiss Drive. Garner, NC 27529 WHITE ROSE AMATEUR RADIO SOCIETY

SIXTH SWL LOWER FREQUENCY BANDS CONTEST From 1200 UTC 18th January to 1200 UTC 19th January 1988. Up to 18 hours logging may be

done during the period. The contest is open to anyone in the World, and there will be two sections — Phone and CW. No mixed modes allowed Transmitting amateurs holding a VHF only licence (LAOCP) can

partic pate The 1.8, 3.5 and 7MHz bands are to be used The practice of logging a series of contacts made by one station is deprecated. Log entries must not include the same call sign in the 'Station Worked' column more than 10 times on each band. A station appearing in the 'Station Worked' column can only be claimed once for scoring. Duplicate entries will incur penalties if not show

as such The object of the contest is to log as many stations, in as many countries as possible. Scores should be compiled as follows one point for each station heard on each band from one's own continent, and five points for each station heard on each band outside one's continent. Total points on each band to be multiplied by the total number of countries heard. The final score is the total of the three bands. A list of countries heard must be furnished and a separate log must be submitted for each band. The cal areas of the USA. Canada. Australia, and

New Zealand will count as a separate country, le VK1 VK2 VK7, ZL1, ZL2, W1, etc. — separate countries All other countries will be determined by the ARAL Countries List. No CQ, QRZ, or similar calls will be allowed to count for points /AM or /MM stations are not to be

included in the entries.

Log sheets to show the following information: Date, Time UTC, Band, Station Heard, Station being Worked, Report at SWU's QTH. Points may be claimed for stations actually heard, and the call sign must be shown in full if points are claimed for both stations, the call sign must

appear in the Station Heard column Entries should be sent to the Cortest Manager, John Hart G3ZGA, White Rose Amateur Radio Society, 146 Street Lane, Leeds, LS8 2AD, to arrive not later than 24th February 1986 Certificates of Merit will be awarded at the

discretion of the White Rose ARS, and its decision will be final. RESULTS 1984 CO WW DX CONTEST

Following are the call signs and scores of Australian stations that competed in the Single Operator section of the 1984 CQ WW DX Contest. of the 1984 CQ WW DX Loneau. WKHJ 108 452, WKHWB 54 390; WK1LF 2 992; WK2DVI 125 498, WK2WU 594 000; WK2DE 2 856; WK3DVI 22 815, WK3CJW 64 932, WK3SM 20 331, WKSFY 100 056, WK4DX 7 380, WK4WK 1 026. VK3FY 100 056, VK4OX 7 380. VK4NX 1 026; VK5BJA 244 387: VK5OX 199 485, VK6DU 417 261. VX.5BJA 244 387, VX.5QX 199 485, VX.6BDU 417 261, VX.6MD 323 635, VX.6HR 208 748, and VX.6HD 1 007 VX.6BDU was zone winner for Zone 29, and VX.CWU was winner for Zone 30. A check log was received from VX.3XB. From CQ. September 1565.



Bill Martin VK2COP FEDERAL INTRUDER WATCH CO-ORDINATOR

33 Somerville Road Hornsby Heights NSW 2077 Thanks to Col VK4AKX, and Henry VK8HA for the above notes

Anyway, let us try to put these problems aside for this month, and HAVE A VERY MERRY CHRISTMAS! See you next month.



"Tee Eris, OM — and a linear, and a new



potator, and " - vxscop

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O Monobanders for 14, 21, or 28MHz

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INTRUDER WATCH

Most columns at this time of the year conclude with Christmas greetings . . . but I will start the column by wishing all readers a very Merry Christmas, and a Happy and Prosperous New Year, and once again, many thanks to those who

supported the Intruder Watch during 1985 Particular thanks to those who sent in reports for August last: VKs 2BOS, 2DEJ, 2PS, 2QL, 4AKX, 4BG, 4BHG, 4BTW, 4KHZ, 5GZ, 5BJE 7RH and Mr G Bradford.

STILL AROUND

The end of the year brings to a close the WIA 75th Anniversary celebrations, and, no doubt, it will seem no time at all until the institute is making plans for the celebration of their Centenary, I hope will be around to see it! On the bad news side, the USSR Naval Intruder,

"UMS", has once again returned to his summer spot on 21,032MHz, DESPITE assurances from the USSR Administration that the offending ons would be removed from the 21 an 14MHz bands

WILL WITHIN LODIN MANY

An interesting letter was received recently from Bob ZL1BAD, the IARU Region 3 Intruder Watch Co-ordinator Bob was recently in Geneva for a 'Study Group' on Intruder Watches, which was held at the ITU building. Amongst other things. Bob reports that, in future, the IW system will work this way

The National Amateur Radio Society (in our case, the WIA) will continue as usual with monthly summarisation of reports, with cooles going to local Administration (DOC) and the Regional IW Co-ordinator (Region 3 for Australia). The Regional Co-ordinator will then forward information to the International Coordinator (new appointment), who will forward the information to the International Frequer Registration Board (IFRB) through the IARU Executive Committee

The IFRB has indicated that it is in favour of the change to the system, and should be good news for all intruder watchers. Formerly, the fW had no direct access to the IFRB Bob also mentioned that, while he was in the USA, he visited the Ferndale FCC monitoring station. This station is able to get a bearing on a signal in 90 seconds, which is computer-linked to other remote stations for the cross-bearing. They can pin-point a transmitter to within one

square kilometre in five minutes. STATISTICS

Statistics for August are - 346 Broadcast In-truders, 130 CW, 51 RTTY, and 20 other modes. Intruders identified were 48.

INTRUGER HOTES The 'V' Beacon-like signal is still being heard on 7003.5MHz, SSB stations operating from the South American continent are still causing a problem on the lower end of 40 metres, and are thought to be NON-AMATEUR; The North American Armed Forces Net, which operates just under the 40 metric amateur allocation has been spilling over into the amateur allocation of late VK6s, in Darwin, are plagued by Indonesian CB operators on the 28MHz band, and, when the solar cycle comes good, we will be looking at a new problem, because the taxi-cab operators, in Hong Kong are using the 28MHz band, with apparently little concern shown by their administration. Actually, it appears that a lot of the intruder orbiems on the amateur bands are a direct result. of the apathy (ignorance?) displayed by the Administrations of various countries, which is a sad state of affairs.



WIIF WIIF -

Eric Jamieson, VK5LP 1 Quinns Road, Forreston, SA 5233

an expanding world

AMATEUR BANDS BEACONS

All times are Universal Co-ordinated Time and indicated as UTC CRECUIENCY CALLSICH LOCATION Hong Kong Japan Mount Clim colorate Island

1 The Mount Gambler two metre beacon is now back on the air, and has been heard both in Melbourne, and at VKSLP it appears not to be as strong as previously being at the threshold of noise more consistently. John VKSDJ, wrote to me and advised of the reopening of the beacon, following more than a year of being out of service due to water entering the vents in the enclosure, which damaged the identifier and caused instability in the exciter strip. Peter VK5BKF, repaired the identifier and made up a waterproof cover while John VKSOJ, repaired the exciter and amplifier stages. The linal result is a very stable beacon, with further pulse shaping to produce a cleaner signal, but currently running 12 waits output rather than the former 20 waits. In due

output rather than the former 20 waits. In due course, full power will be available to John and his group are not sure whether a power of the course, full power in the sure was the course of the power and the course much inferest by vandals, but may well do so if raised Personals). I believe it largely not the most important parameter, and the malitimity of the most important parameter, and the malitimity prevented in propagation conditions produces a more readable signal. I believe it should be left as as, I can still mad it all the time, went if do have to all I made I do have to all I d now wait for a minute or two for the signal to come out of a fade whereas, before it was always audible, despite QSB

2 I understand there is a possibility of a frequency change for VK2RCW to 144.950MHz. October 1985 Break-in has a note from Tim VK2ZTM, advising of this and the possibility of an 80 metre outlet on 3.699MHz for a trial period of six months. until early 1986, using a crystal locked FT-7 with 15 watts into a long wire antenna. The beacons are sponsored by the Hornsby and District Amateur sponsored by the Hurrisby and Down NSWL 2077, Redio Club, PO Box 362, Hornsby, NSWL 2077. and reports are sought VK2RCW is a Sydney based, continuous Morse

transmission station, and is transmitter fed from a memory store with about an hour of text, which is changed at intervals. A wide selection of text is used, including foreign languages, and can be sent backwards to prevent the listener from journalising. Transmission speeds are 5, 8, and 12WPM, and operation is continuous.

VK2RCW started transmissions in 1976, on 147.400MHz using (mostly) a VIC3 carphone, with five watts into a 1/2 whip on top of the tin roof of its nost building, on the Upper North Shore in Sydney, where it has a good view of the city, and the southern and south western suburbs. (Also, see page 34, Amateur Radio for further details)

Whilst on the subject of beacons, I note also the October issue of Break-in in "The VHF Scene columns, on 23rd May VK2s copied the VK9ZR beacon on six metres, from Willis Island. I was not aware such a beecon existed but, it may have been an attended keyer used when the operator was in the shack. If anyone has more details they would be appreciated, but in any case it indicates a very distinct possibility of six metre operation from there this Es season.

SIX METRES

This band is being reported as being very quiet in all areas of the Southern Hemisphere ZL3ADT said the winter Es were very poor indeed, Jim VKSAZY says much the same thing, and I am doing likewise. There appears to have been some contacts between VK2 and ZL, around June and July, but little has come through of later contacts. From my viewpoint, the present equinox has been

SIX METRES OVERSELL

From "CQ ham radio", Japan, the Northern Hemisphere summer Es produced plenty of con tacts, but not covering any great distances, is seems. In the lists provided are contacts from Japan Io HLIASS, HLIQW, HLSBAS, HL2DCE VS62MT, JD1BCD, VS6EL, VS6XNF, HL2GS HL1ADN, HL2ICB, HL1ICM, HL5BMA, HL2ASH HL2AFG, J018BE, HL1ALV, HL2BAM, HL2ASH, J018BE, HL1ALV, HL2PO, HL1EL HL5BFM, HL5BAS, plus another 10 or more HL stations, DUTIGE, VSSAV2, BTHHL, BYANA VSBTE, BT4RJU, HL3ARA, BYSRA, K7RWT BY1PK, and with the VS6SIX beacon on 50,075MHz being heard almost on a daily basis. but this being the only beacon to be heard there! Contacts have been made on SSB, CW, FM, and AM, with the latter mode being as high as

Television sound signals have been heard in apan from Russia on 49.750, 9M - TV on 53.740 Japan from Hussia on 49 750, 944 — 1 V on 53 740, BY — TV on 51 250, 9M — TV on 48.240 and 48.250MHz. The stations which have been worked on FM all appear to be above 51 000 and no SSB operation appears to be taking place below 50 100MHz. CW signals also keep above that frequency, judging by the lists It seems reasonable to assume that generally the beacons operate below, or around 50.100, and for the ent time at any rate, all other operation above 50,100, with most up to 50,200, but some beyond

SIA METRIES - USA TO EUROPE The opening up of new areas to six metres for the

first time must be quite an event if you are an avid six metre operator, and within range of those new areas. The increasing availability of stations in the UK, and with good Es band conditions, allowed many stations in the US their first trans-Atlantic contacts. Bill Tynan W3XO, in October 1985 QST "World above 50MHz" says it all...

"The 30th July Es opening between the East Coast (USA) and the British Isles certainly ranker as one of the greatest thrills in this conductor's 37 years on six metres. Prior to this, in my wildest dreams, I had hopes that maybe, about 1990, F2 and longer operating hours for the G stations, might team up to let some of us North American Six Metre Enthusiasts add a few UK countries to our SOMHz DX rosters. I even harboured a faint

glimmer of hope that some of us in the mid-Atlantic States might be able to work one or two G Attantic States might be able to work one or two G stations on a fleeting Es opening. As reported last month (See November AR), one such Es opening sois place on 2nd July But, who would nave thought that a much bigger one would occur again so soon, and so late in the season? On top of that, it was a long opening, lasting upwards of two hours, and very wide-spread, stretching from New England to northern Florida. "Those in the mid-Atlantic States fared best,

W4CKD in Virginia, a suburb of Washington, made his first six to 10 metre cross-band contact at 2152, and went to work four G stations prior to 2230, when those with special six metre perm are allowed to begin transmitting on 50MHz. After that he worked another 14 LIK stations W3XO. aner be worked another 14 th Stations WAN, after being alerted by a phone call from WASDM, worked eight Gs plus GJ3YHU and GW48CD Further south, W2CUN worked VP9GE (Bermuda, at 2302 and then eight Gs, the last at 2302 At 0130, W2CUK, NOEAO, and KAONNO in Denver, and at 0138 W6RXQ Quite an evening — working from Europe to California via six metre Es in the space of a few hours! "From the other end of the contacts, G3CO.

From the other end of the contacts, G3CGJ reports nine W OSOs between 2230 and 0005, to W4CKD Virginia, K2MUB New York, K3ACR and W3JD Pennsylvania, K83OM Delaware, W2HFI New Jarsey, W2CUK4 South Carolina, W3KO Maryland, and KA4DVH Florida, which is quite a wide coverage.

"On 6th August, about 2245, six stations in the W1 and W2 areas worked EA4CGN in Soain six to 10 metres, during a very intense Es

I suppose there are reasons for it, but one would have thought that with the opening on 30th July being so strong, that more actual contacts would have been made across the Atlantic. Possibly, one of the reasons more contacts are not made is that there are not a lot of operators at the moment in the UK, and the time differential has to be taken into account, there are probably thousands of W stations capable of putting a signal into Europe under good conditions, so I would Imag ne It to be something skin to a good JA opening to Australia, when so many stations are cailing from one and that the rate of contacts becomes slow due to massive ORM levels. If there are other reasons. then I expect Bill W3XO will tell me in due coursel "The Shortwave Magazine" for August 1985

carries the following under the heading of 'Six "28th June 1985 was an historic day for UK VHF operators: In the House of Commons, Mr Geoffrey Pattle, Minister of State for Industry and

information Technology, made a statement concerning the future planning of Bands 1 and 3. Part of this statement was : . . . I am conscious Part of this statement was : . . I am conscious that the interim Merriman Report recommended that the radio amateur service should be given an allocation in the band — ie Band 1 — and I am therefore proposing to fulfill that recommendation by allocating the band 50 to 50.500MHz to radio

I am sure we are all very happy for the UK amateurs, who, for some time, have had a restricted usage of the 50MHz band, and we all hope that this will lead to a much greater six metre population in that country, with more possibilities for all to work someone there, even from VK But, more importantly, isn't it great to be able to read of a positive statement being made by the appropriate Minister, and that is something not too

appropriate ministry, and that is something not too often heard in todays poulted arens.

Norman Fitch G3FPK, who writes the "VHF Bands' columns for "The Shortwave Megazine", has this to say "Behand that simple statement lies years of hard work by the RSGB, which has

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resulted in the UK becoming the first country in Europe to grant its radio amateurs a 50MHz band It seems likely a Gazette announcement could appear by the end of September

"It is to be hoped that the Society will keep the band plan simple with these out-moded calling traquencies largely omitted SSB and CW calling frequencies are unheard of on the HF bands, so why bother with them on six metres? Perhaps we should consider not using FM mode on this band. since it is a spectrum wasting system, better suited to UHF/SHF

"Of great significance was the reception at 0200, on 23rd June, of GB3NHO by K7KV, in Auburn, Washington, on the West Coast. distance not far short of 8 000km What kind of propagation was that at this low point in the sunspot cycle? Quite obviously, there is much to be researched about 50MHz propagation

About the only additional comments I wish to make about the above couple of paragraphs is that, despite the abuse of calling frequencies by some operators, leading to the frustrations of others, there is ample evidence that the use of calling frequencies has, in the past, resulted in contacts being made that might otherwise not have eventuated. One needs only to look at a possible situation where an operator could be in the shack building some equipment, and monitoring say 52 050, and being on hand to enswer a call from a station in a distant area il answer a call from a station in a cleam sees in you have 50 operators doing nothing site but monitoring, there exists the chance for some contacts being made. And what of 28 885MHz during Cycle 21? World-wide usage of that frequency certainly sterted a lot of people as to band conditions and many useful contacts resulted I think the people of Europe will eventually see the wisdom of some nominated frequency to mon tor and this wisdom will come with their now given ability to make greater use of the band with all its strange happenings. On the question of the 8 900km hearing, it could

be very similar to that which prevails here when JA signals come down as far as North Queensland and they are given further help down to, say VK5. over an additional 2000xm due to Es existing between here and Queensland 8 000km is a long way I know, but most things have an explanation when Ea is around. Let us now hope the G operators can share in some of these strange, but interesting, happenings and so sous knowledge being built up all over the globe as a result of six metre operating

CALIFORNIA TO HAWAII ON TWO

They have done t again! A tremendous duct formed between the Californian Coast and Hawaii. from 12 to 14th July, and stretched from the Mexican border to well north of San Francisco, and also up to 100 miles or so (200km) inland, when previously the ducts slopped near the shore-

Both KHSIAA and KHSHME were 8 000 feet up on the side of Mauna Los, about half a mile (.8km) apart, which restricted their operating to some extent as they had to take turns operating on the band Sill KH6IAA had 40 QSOs using an IC-211 to a 100 watt amplifier, and an eight element Quagi about 12 feet (4m) above the lava flow. One of the highlights of the operation was the contact between KHBHME and NSCA on 23cm, SSB Paul had worked Chip last year for a new world record on the band, but on CW only.

on the band, but on CW only.

KBQXY near Santa Rosa, 50 miles (80km) north
of San Francisco, and 2 000 leet (810m) above see
level, says both KHBIAA and KHSHME Had strong
signals for 36 hours with the latter especially
alrong on 70cm W6YKM is 100 miles (161km)
willand from the coast and had contacts on two metres, obviously helped by his location 3 000 feet (914m) above-sea-level. The most inland station was K6PVS, and it is thought he may now hold the DX record for the W6 to KH6 path with a distance

of approximately 2550 mies.

The whole thing repeated on 28th July, but did not last so long, however, signals again penetrated quite a distance inland KHBIAA again worked some 40 stations, and added that the the Quage was turned vertical the SSB stations were weaker. The band opened again on 14th August, but confined to northern California, the hern stations hearing nothing. Once again, KH6HME's two metre signals were heard first then the 70cm beacon. WA5LHD, at Fairfield was able to make a two metre contact with KH6HME. despite having three mountain ranges in the pathway!

above information was again extracted The World above 50MHz' October 1985, and I looks as though the W6s are consolidating their hold on the two metre, and 70cm records by extending the contact distances further than just their coastine. This makes it all the harder for VK to snare the record again, but Albany to New Zeeland might just do it, so you never know!

THE AUSTRALIAN SCENE

John VK4ZJB, has written with details of the DXpedrion to Lord Howe Island by Nev VK4ZNC to operate on six metres. He will arrive on 20/12 to operate on aix metres. He will arrive on 20/12 and leave or 30/12. He will operate with the call sign V/SPC, with 70 watts PEP into a three element Yagi OSL information as per the current Call Book — 07/HR. New a requesting a normal donation of \$5 for a OSL in an effort to help with some of the costs of mounting the DXpedition to give many operators a new country. The primary frequency will be 50.050, and suggests ". fots of listening and CQ VK9L, not QSOs on the trequency to clutter it up

John also confirms that Chris ZL7OY has been chosen to be with the meteorological team going to Raoul Island for one year, commencing October 1985 Raoul is part of the Kermadecs, and Chris 1965 Haoul is part of the Refinaciecs, and Chris-has been allocated ZMBOY to 31st December, then from 1st January 1996 until the end of his stay he will be 2LBOY QSL via Chris* XYL, Mrs C Hannigan, The Terrace, Werrington, Otago, NZ, Chris proposes operating 'all bands CW and SSB', and John is hooing this includes six metres. In the light of previous contacts from the Kermadecs, I seems very likely some six metre operation would

As I write this information, another note has come from John confirming Chris was definitely taking six metres with him and will operate on all ZL and VK common frequencies, and the departure data from ZL was 3rd October 1985 Thanks for the letters John, they contained

good news for the six metre gang Eddy VK4KAA ex VK4ZEZ, has now returned to Townsville after spending some time in Melbourns loswich and Mount is a after leaving Townsville previously. At the moment, he is trying to get his station in order again, and so far is monitoring OSCAR 10, and also six metres, but no signals on the latter band so far
Eddy reports that recently a larger inversion

over the Coral Sea produced a good two metre path to Port Moresby, and it was possible to have contacts through their repeater, using a hand-held transceiver On two metres he also uses the VKS pre-amp, and has had successful AMTOR RTTY contacts to Cairns on two metres. So it looks as though we will have another station from Townsville, this summer

432MHz EME

Doug VK3UM, continues to have considerable success with his mostly random EME contacts The following is a resume of recent QSOs with the first report being that sent from Doug, and the second being the report he received
79. This was a sched weekend; 2145
DL9KR 559 559, 1709 VE4MA 439 339 with bad

ibration lading, 2325 DJ6MB 449 439, 2357 JA4BLC 339 349 4/10, 2000 DL9KR 559 559, 2023 YU1AW 559 559: 2040 G3LOR 439 439: 2112 LX1DB 439 439, this contact with Luxembourg was a new

country for Doug 5/10: 1452 N4GJV 439 449, again bad libration, 2022 DJ6MB 449 339, 2115 G3SEK 339 339 2140 DF3911 449 439

Scattered amongst the libration fading there are some very good signal reports listed above, good enough for SSB, one would think. In addition to the above, Doug has maintained contacts on the path to Sydney, with Canberra on

the way. Sunday 1/9 on 432 produced contacts with VKs 12T, 18UC, 12OS, 2BE 2QP 2DVZ, and ZZAB. Don VK3YV also worked into Sydney, while Lionel VK3NM heard VK2ZAB. On Saturday, 510 VKs. 1BG, 1VP, 1AU, 1BUC, 1ZZT, 2ZAB, and ZZRU These type of contacts always seem to be possible when the various parties are home and available. On Sunday 6/10 Ross VK2ZRU was worked by VK3UM four times using aircraft

Doug also indicates he will be signing VK75A for contacts via the moon during the preacribed time the call sign can be used. Thanks for the into

ROSS HULL CONTEST

This memorial VHF contest is scheduled to commence at 0001 UTC on Saturday, 14th December, and conclude at 2400 UTC on Monday, 6th January 1986. Again there have been some rule changes which is bound to bring some flax, but one would have to feel sorry for the succession out one would nave to feel sorry to rive succession of contest managers who have tired to arrange the cause of the contest managers who have tired to arrange the cause of the knocking these two changes too much, why not try it for this year and see what the results are incidentally, it would not have taken much more correspondence to have all Ross Hull contacts not less than 200km for all bands! Such a rule might have caused some interesting situations, aspecially at the higher frequencies Perhaps consestants might like to comment to the FCM on that when submitting their logs

Looking at the revised scoring I am sure there will be some grumbles, but if you are fair-minded you would have top concede there is no hope of a scale of points which will suit everyone, and there must be some give and take After all even VKSLP has to operate under the same rules, and I would give a lot at times, to live in some of the great VHF locations that some operators enjoy. when compared with my poor location, but I have not used that as a reason for not operating. To live in the metropolitan area of a city, with its nevitable large VHF/UHF population, is not all detrimental when you go up in frequency — try doing some UHF operating from out in the sticks, particularly if the sticks are not located between two capital

All the above paragraph simply means is All the above paragraph simply means is "air give if a 1.17 this year, see how the changes shape up, but send any helpful comments to the PCHs with your logs" Also, if you care to go to a little more trouble, why not send me a copy of your log front sheet, and your comments so they could be ared throughout the year, rainer than they be held by the PCHs until it is time for another contest. I am prepared to extract anything from your comments, which is reasonable and generally constructive, and give it some mileage through this column. See you in the Ross Hult.

OTHER NEWS

A new Region 1 23cm record was established on 29th June 1985, between David G8LEU, and EABXS, between 1940 and 2012 UTC, with reception apparently in 10 to 15 second bursts. The datance has been calculated as 2520km. The world record for this band is held by KHSHME and N8CA, on 24th June 1984, with a distance of 3997km. This note is recorded in 'The Shortwave Magazine' August 1985.

From the same source is the news that a new world record for 144MHz EME was established on 26th May 1985, between G3POI and ZL2BGJ, with a distance of 18 82tkm, which is only 1 184km short of the maximum possible distance which could be achieved with someone in Spain. G3POI used a 160 element collinear array and ZL28GJ. an array of four Yagis and a Henry 2002 amplifier Congratulations to both operators. The Annual VHF/UHF Table of 'The Shortwave

Magaz ne' shows the top scorer being GW4TTU with 19 countries confirmed on two metres, eight on 70cm, and five on 23cm. The second top station, G4TIE incidentally has 12 countries on 70cm, I suppose that is one advantage of having on many countries within the range of your station in the UK. One wonders what some of the scores must be for European mainfand operators, right in the centre of Europe, where distances between countries are even electric? Perhaps mustal CRMs also note that G4TWD had S50 QSOs on CW for the yast, on 144MHz!

the year, on 144MHz! Mexicon, continues to pile up Mark VKOAQ, at Mawson, continues to pile up contacts via OSCAR 10, judging by the exotic QSL cards arriving here, from time to time. Mark suffers quite a deal from local GRM at his base, which can make 20 metre contacts difficult at times, hance the OSCAR operating. The VKOMA

blacci appear to be still normally as the Addition of GIV XCAUI, recently returned from an extended round-the-world trip, has provided this pholograph of Johannes LABHI. Johannes was operating portable in logisted and is pictured at his location viewed folland and a morber of times, and works 14d and 432MHz meleor scatter He also has SCMHz equipment. A from metre bascon to be-ng, natalied in rolland by Johannes, with Title help of a group and common of the state of the province of the prov



Johannes LAGHL



Johannes Meteor Scatter America

Local news on VHF is scarce this month, maybe the 5s will start to come along soon and help the situation. With this issue I commence my 18th year of compiling these notes. Thanks once again to those people who write to me and send information, and to the Clubs who send their build in and journals. As it is December, I wish everyone the

As it is December, I wish everyone the compliments of the season, and plenty of useful DX in 1988 — the year of South Australia's 150 inhibite.

Closing with the thought for the month —
"PUSH may get you anywhere in this world —
except through a door marked PULL." 73 The
Voice in the Hills.

HIGHLIGHTS OF AMATEUR WIRELESS



HISTORY IN —— AUSTRALIA:

APRIL 1935. Mr Scena Ser VAREYQ and Mr Billio of the PMLC Brown Department demonstrated 55 MHz equipment in the Queen Street rooms of the Vicinana Tourison of the Western Services Institute of Austriala. Two-way phone communication was of a loudspeaker in the meeting room progress of a loudspeaker in the meeting room progress of a loudspeaker in the meeting room progress of all the mobile automs the followed and moved along vicinities of the mobile automs the followed and moved along the mobile automs the followed and moved along pages at interest and abrought motion pages at interest and abrought motion pages at interest and abrought motion pages at interest and and the VMA 56. AMHz Croup. The late john Moyle VEZIU, was an 19384–9335. Ambauer author and on the VMA 56.

— "Operating & Experimenting Section covering 28 MHz. 25 MHz. 117 MHz and 224 MHz. The Gaddsen Tiophy was awarded to 224 MHz. The Gaddsen Tiophy was awarded to over the period from juse 1935 to June 1936, it, was the first Experimenters Tiophy for annual prosecution. The Queenstain dispuss proched up the Australian distance record 252 ame and 104 MHz. 104 MHz.

SETTLEMBER 1935: First organised 56 MHz Field Day arranged in Victoria following the success of VIX2 and VIX4 tests from aeroplanes and motor cars. Twebs esties selected were at Mt Dandenong, Mt Macedon and Arthur's Seat. Geelong amateurs were alerted in case Post Phillip Bay was spanned! Distances of 45, 70 and 80 miles (72, 113 and 129 km) were achieved.

OCTOBER 1935: First 28 MHz contact between New South Wales and Europe made between VK2LZ and F8VS. First 28 MHz contact between Queensland and Europe was between VK4E1 and ON4AU in the same month

1935. The first transmitter for the WIA Victorian Division using the call sign VICWI was constructed by Bill Cannow VK3WC, for the institute's activities at the Essendian Aerodisone. It was after rebuilt by VK3WC and Bob Canningham VK3WM, and operated from Law Court Chambers at 191 Queen Street, Melbourne, court Chambers at 191 Queen Street, Melbourne, exception of the Court Chambers are 191 Queen Street, Melbourne, 1930. The Lakewsha Radio Club in New South 1935. The Lakewsha Radio Club in New South

1935: The Lakemba Radio Club in New South Wales published a successful official Club paper — The Lakemba Review.

1935: The Tasmanian Division of the Wireless Institution of Australia staged its first State Field Day in March of 1935, held at Campbell Town 80 miles (129 km) from Hobart at which the northern amateurs met the southern amateurs.

OCTOBER 1934: The Victorian Division of the Wilk assignd Australia's first DV. Contest on the occasion of Victoria's Centerinal Celebrations. The Contest Manager was 8bb Cunningham VICMIL. Prizes: were presented by the Chief Inspector of Wiveless, Mr. [Malone, in the studios of the commercial station 3D8 Melbourne The Centenary DX Contest was the forerunner of the first VikZL. Contest in the Corresponding Control was the Gillowing year.

SEPTEMBER 1934; The Amateur Radio Association (NSW) set up an amateur station at the "Gentlemen's Hobbies Exhibition" held in aid of the Industrial Blind Institute. It was organised by VKs 2UX, 2FQ and 2HZ.

OCTOBER 1933: The Melbourne amateurs gave a dinner to the country amateurs

1935: The Wireless Institute of Australia celebrated its Silver Jubilee as the oldest amateur organisation in the world having been founded in New South Wales in 1910 by a group of wireless experimenters.

OCTOBER 1934. First contest organised by the VMI fulled — The Five Point Contest. The second contest was the — The Fisk Trophy Contest in 1935 run on a six monthly basis for intertate contacts with cypher interchange with each CSO. The tophy was presented by MF Ernest fisk idited for contest was — CO Fisk. Six Ernest Fisk was also an early President of the WMI in NSW and also of the Austra van Radio Amateur Transmitters League (ARATU.)

1938: "Phone Section of the WA. in charge of frequency allocation of crystals for the 200 meter Amateur Broadcasters' Stations had to meet a technical standard before crystals were allocated. The quality of some transmissions were frequently superior to the commercial transmissions with eday in October 1934 a "Phone Contest was held in which the quality of recordings and speech were judged. Some authorised stations utilised YL announcers."

OCTOBER 1933: The first saue of the WIA's own magazine - Amsteur Racio - was published in octavo format by the Victorian Division of the WIA. The Federal Council of the Institute endonsed it as the Official Organ of the Institute During World Wair II the printed publication oceased due to costs and the temporary cessation of amateur radio on the air. It was replaced with a "oneeded version" until 1945 when reprinting commenced in a quarto format.

1933: The licensee of the famous stat on A3BY, QA3BY, VK3BY, (Mr Holst) tells the story of how, in 1912, he used a spark transmitter to work out school lessons with his pals!



Unfortunately the solar cycle on its downs trend has not been conducive to enthusing the newcomer to seek DX, however the DX at still there if you are in the right place at the right time When one tunes across the band, it appears 'dead' but what one does not know is there are elso possibly others tuning and not calling at the up, why not make it a practice every time you switch the transceiver on, to give at least three

calls. Next months column will present another am teurs view point of DXing, as she has known it for in excess of half a century, which has allowed her to join the ARRL DXCC Honour Roll, to the best of

to join the ARRL DXCC Honour Roll, to the best of my knowledge the only VK YL. to achieve the honour incidently, this amateur has been a member of the WIA for 58 years.

To all readers, I would like to extend Sessons Greengs for 1985, and I hope that 1986 bestores health, happeness and of course lots of good DX. even if the conditions are not what they could be

A chore, to us all at times but a necessity, as in my pointon a card compliments a contact that you have made with a new station, a friend you have just made and may never have the pleasure of meeting, yet will meet from time to time in the ensuing years

Jan and Jay O'Brien, KH6HHD and W6GO their invaluable publication the W6GO/K6HHD OSL Managers List, Issue number WIGGURGHTHO USL, Managers Last, issue number 87, have written an excellent article termed 'Successful QSL/ng', I have decided to reproduce this article in an adapted form to suit conditions applicable in Australia which I am sure will be of interest to all who QSL, either directly or through

the bureaus Jan and Jay state 'Getting OSLs is important to you. Otherwise, if it wasn't you would have little interest in this publication. Our goal is to help you get those important QSL cards. We have been athering information from many sources and

gathering information from many sources and have presented several columns for you with hints on OSLino." Here is a recap of the most important points. THE BASICS.

At all times use 24 hour UTC time and UTC date, this will then agree with the DX stations log and save the operator, or if he is lucky enough to have a manager, the precious commodity of time. Many operators and managers place the cards that do not agree with the log into a separate file to be attended to when they get around to it, which may be a week, month or never in some cases. It is easy to see the importance of the use of a universal time. Even in Australia with the advent of daylight saving time, there can be a huge variance, particularly if a station is working 60 stations per hour, a conservative figure for a good

COMPUTER GENERATED CARDS

if one uses a computer, as I do, it is convenient to place the year month, day, and time in that sequence when keying the log in for sorting purposes. Some countries place the month first, followed by the date and year, eg. The 1st of April 1985 on my card becomes 1985/04/01 and on an American card it could be written as 04/01/1985 Imagine yourself in the recipients shoes. When did this station work me? Or did he or she work me? So into the too hard file, therefore on those special cards, write or print the month in or programme the 'wonder box' to do it for you. The same applies with time. A five minute incorrect time could mean five contacts difference, not much to look for but it may be over a page, which becomes time consuming. So precise time in the log is essential

Cards should not exceed the dimensions of 140mm x 90mm and be on a card not heavier than 250 grams per square metre, if one intends to use

the bureau. The reason — economics It is essential, when filling in a card, that the information is clear and accurate and that there are no alterations. If you unfortunately make a mistake, destroy the card and start again. An altered card will not be accepted for accreditation or most awards and therefore be comes pasteboard, nice to behold but heavy on the wallet, particulary if you are sending it direct instead of using the bureau facilities.

CENTING TIMES

If it is a rare station in a country that you ha not received accreditation for, my advice is to QSI direct, if you can afford it. As your chances of receiving a card fairly promptly are quite high. It is essential that one sends a self addressed enve lope (SAE), accompanied by adequate inter-national Bapty Coupons (IRCs) or a 'green stamp'ione American dollar), the latter is value in many countries and in some cases cause the recipient many problems

REMINIORY THE NUREAU Each VK bureau has its standards, and it is advisable to check — but, to make it easier for all.

the following ground rules will assist Remember, volunteers run the bureaus, and time is precious, so pre-sort the cards alphabetically, and numerically, after having placed the recipients call sign in 12mm high equible lettering at the top right corner of the card This can be on either side, whilst viewing it in a borizontal position

If there is a manager involved, it can be placed underneath in smaller lettering Your attention to the above will be greatly appreciated by all bureau personnel throughout

the world - and, of course, expediate your card to the recipient MATERIFORNIE

According to media reports, Pakastan AP2, has begun censorship of all incoming mail, except those of a diplomatic nature. Currency is strictly laboo, so please don't embarrass the recipient It is believed there is evidence of mail being inspected also in the Peoples Republic of China. particularly if photographs are included and it has been proved that material of an olfending nature is confiscated and destroyed. Again please beware of embarrasament to your fellow amaleur, and the

image of our country PROFILE OF A MANAGING EDITOR

I read, amongst many other magazines, World Radio and quote a lot of their material This excellently presented monthly, that is antirely devoted to smatter radio, is edited under the management of Christine KASTAL, who gained her Technician Licence three years ago at the age of 27. This lady, apart from being a housewife for five years, does freelance journalism, and is involved in a little public relations work for a nehire contre.

Christine: a person with boundless energy, is heavily committed with church work and has other



hobbies including reading, playing the guitar, hilking, photography, and her duties at the local nature centre. Christine, keep the excellent stanclard up. It is known that all your readers apprecialle your untiring efforts, as do the folk at this OTH

MEW TAIWAN AMATEURS

NEW TAIWAN AMATEURS BYZDA Feng, ex XWBBP, BYZFA Shane Tang, an ex HS operator, BYZGA Randy Wan, ex KASLGA, BYSHA GT Chang, BYGIA WIL Chen, BYZJA CL Soo, BYTKA S'L Teng, BYZLA C M Teal Congratulations and welcome to the above newcomers who will take the 'heat' off Tim BV2A/ BV2B, who has given so many a new country for their DXCC over so many years. Incidentally Taiwan is divided into nine different call grass with the 0 heing reserved for visitors.

Further examinations are expected to be held in the near future

MONTE It is reported that Mario will be active with

1ADKM in February. If you have not worked it place a note on next years diary as Mario ЮMGI would like to keep it on the 'much' wanted list! Hence, very few operations per year can be expected

CONGNATULATIONS

Isao JHIRNZ, sloo known as 3D2RN and other calls pertinent to the Pacific area, has a smile from sar to ser, since he had a QSO with the US Space Shuttle CHALLENGER, on both two metres FM and colour SSTV on the 4th and 5th of August Congratulations isso on being the first and probabily only JA operator to succeed

DEHEAVEMENT

It is sad to relate that confirmation has been received of the deaths of JI3USA, JF3NAK, and also JOIPSU, with her two children. These smsteurs were killed in the tragic Japan Air Jumbo Jet air crash in the mountains of Gunma on the 12th of August From all amateurs, condolences to the families, not only of the amateurs, but to the other passengers involved in this unfortunate disaster. Also, it would be remiss of me not to mention the disaster in Mexico City, where amateurs, played a magnificent role in assisting in rescue operations and the transmission of emergency traffic. Again condolences to all who lost loved ones and friends in this horrific natural disaster

KNOW YOUR COUNTRY

Bob Winn W5KNE, has written an excellent article on the much sought after Galapagos Islands, which is reproduced for the interest of all

The Galapagos Islands, or Archipelago Colon as they are officially known, are astraddle the Equator 960 km west of South America and 1250km southwest of Panama. The islands were named by early visitors for the large tortolses that inhabitated the islands. The Spanish word for tortose, is Galapago The Galapagos, which includes 13 main islands

and many smaller islets and rocks, has an area of 7800 square kilometres. The largest island, 130km long isabeta has five major volcanic peaks, the highest having an elevation of 5800 feet

The islands are the tops of large volcances. Some volcanic activity (fumanoloss) is still evident on the islands of Isabeia. Farnandina, Pinto and Marchena. The last volcanic eruptions occurred in 1963 (Isabela) and 1966 (Fernandina)

tiess (Isladelia) and 1900 (1911 and 1918). Even though the Gallapagos are somewhat solated they have a long and rich history. The first known visit to the islands was by Fray Tomas de Berlanga, Bishop of Panama, in 1535, However, the islands were relatively unknown for another 200 years.

By the late 1700s, wharers and fur seal traders visited the islands for food and water. The hunters slaughtered the fur seals, iguanas and giant tortoises were often taken alive on board for lood

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and exert as they could survive for long periods without food or water Refore being claimed by Ecuador in 1832, the

islands were often the base for pirates and generally ships from many nations. During the war of 1812, the US frigate ESSEX used the slands as a base it wasn't till after Ecuador claimed the slands, that they became permanently inhabited.

Probably the most famous visitor to the
Galangos was Charles Darwin, the lather of evolution Darwin visited the Islands in 1835 with

the HMS REAGLE Many of his ideas concerning woulding the islands.

In 1959, the government of Ecuador proclaimed

all uninhabited areas of the island group as a National Park and enected laws to protect the nativo wildife

I know Bob, and his XYL Bonnis, put considerable research into this article and it is trusted that you will have something to chat about with your next QSO to that part of the world.

DESERVOINTMENT It was a disappointment as to the number of

repress that I received for the survey of wanted countries, as requested to readers in a previous issue. The Poet Box wasn't crowded to say the Out of the number I received, the following countries predom nated: 3YO (St. Peter 1 Island), 3YO (Bouvet Island), 7O, ZA, S9, CEO (San Felix Island), PYO (Trindade), SV (Mt Athos) and 1A0KM

(Knights of Malta) is is not by any means a true evaluation of the seded countries required by VK amateurs and SWLs, as it does not include any SWLs or Novice operators figures. The reason is that none were

subm tted No one included their interest in the WARC No one included their interest in the WARC bands, even hough they don't count for awards or DXCC, so no figures are available. The column response The same happened from European operators, with only 30 submitting their wantacts to the "OX Bulletin", out of a total of 582 returns. The overall figure was 788 least year My question to all readers — a DX what it used to 56? Hiss it to an reactors — is DX what it used to ber riss it become a 'biack box' operation, or is it a lack of interest due to the propagation conditions which are nearly at the bottom of the Solar Cycle.

A LADY OF NOTE

Many VK CW operators have worked Liz W3CDQ, over the last half century, and they have the card to grove it. However, very few of these operators real se that Liz still uses a 1922 hand key and will celebrate her 87th birthday on the she has been on the air 62 years.
Liz remembers, and talks guite often about, the

time in 1917, when, as a young girl, she took a radio course with the hope of becoming a shipe operator, after her completion and passing of the course. Her hopes were deshed due to World conditions at that time, but before long, with her new commercial icence, she was teaching code. to hospitalised veterans wishing to update to new positions in the forces.

In 1921, L z obtained a position with the Bures of Standards, as the only lady in its staff of 21 radio personnel. Her duties were varied to the extent of taking measurements, the winding of cols, making receivers, translating items from foreign magazines, to assisting in the publication of a book titled 'How To Bu Id A Crystal Set From An Ostmaal Box', of which 20 000 copies were

sold.
This lady built a five watt, one valve transmitter, and also a one valve receiver, after caining he amateur licence in 1922. Since then she has made innumeral friends throughout the world and is of Standards, with a rig running 100 watts to an ndoor multi-band dipole antenna that is located between the roof and ceiling

between the roof and celling Liz, has been a member of her national society, the ARRL, for 55 years, and belongs to many clubs and the Society of International Radio Engineers. In a letter to a VK friend, she remarks that she recently attended a YL convention, where some 200 attended, and had the privilege of



very early stages of her amateur career. This lady always maintains that the hobby we enjoy has meant friendship to her.

Happy birthday and many more healthy and happy birthdays in the future Liz Zandonini, from

all your friends in Australia and the amateur fraternity in general.

Adapted from World Redio, September 1985, with assistance from her many blends in VIV.

ODOS AND ENDS

The WARC 10 MHz band is now available to Italian operators. I3BLF has achieved 27 countries on all continents. ** Rudi DJSCQ, is quite active from Lord Howe Island, QSL to his home QTH. "
4U1UN quite active on 20 metres. " Watch for
XT2AU who hopes to be active from SU7 this XT2AU who hopes to be active from SU7 this month. "SEA Net starting to be heart again in the eastern states. Time 1200UTC Frequency 14.320 MHz Don't mas an excellent net where everyone a made welcome." Zone hunters watch for U20WH20, located on Shitistian Island, which is in Zone 19. "Carry VC10C/S2 does not hold acceptable credentials for DXCC." Bernt A24BJ, quite active QSL Private Bag 7. Francistown, Botswana. ** Listen for Chris VKDCC, ex VK2BCC who is on Heard Island It is whole, by where will be very active due to the workload. Listen between 14.210 and 14.150 MHz. "* John S78JW quite active, with strong signals. QSL to PO Box 487, Victoria, Seycholies.

CAROS ROLL INI 1

Stephen VK2PS, reports that he is still flying with the "VI" prefix and running his 'commercial regarding the WIA's 75th Anniversary. It regarding the WIA's 75th Anniversary, apparently brings a lot of DX out of the 'woodwork

that would not normally appear Stephen has had another batch of cards from the Bureau, including 25 SWL cards from the USSR and pasteboard from BVOAC, BY1SK, HBONL, PPBJJ, PTZVE, TIZANL, TIBCBT, HBONL, PPBJJ, PT2VE, T YQ3CD, YOP8WCY and ZS1OU

The way Staphen is working the DX, recommend to him that he buys up on pens, to fill in the onstaught of cards he is going to receive.

Karen KAOCDN, has found a way of quick returns to get a JSWAD card. Karen used the three envelope trick. In her own words she says "I pur our cards in one envelope along with 2 IRCs and a SAE and wrote the QSL Managers call on the envelope. Do not seal the envelope. Send along with other cards to Box 88. Cards were returned in our SAE with Soviet postage stamps and rubber stamped from U QSL Bureau, Moscow, Box 88".



38EPPINEOYO, 3DAN GSYD, 3DAN GSYD 3D2RN "HIRNZ 4N3E YU3HAM 5B4LP KASPIB 5Z4MX SM3CXS 8J1XPO "ARL 9J2Y M., F3KLB C30LBK EASTJ CMSAB-VE1ASJ KW8Z, FE5RV 5Z4DL KE4DA, 7S2SSA SK2AU, 8J2ITU JARL, C23BD WB0TEC C30LBS I*FOU, DX114 JHOON TK F5RV. ELZAL P TK F5RV, GV2TW GM2TW GWMRS G3YO OWNEG GASEP
GUNNEG GASEP
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WANTED KNOWN DLSBE is NOT the QSL Manager for 4X4III WORKED ON THE EAST COAST 21MHz KA7DSL* and KH8M

SABBLE STROTTON STATES AND STRONG STR 1.6MHz FK8DK* VK8HD and WQZV

THANKS

THANKS TO SECOND THANKS THANKS

AMATEUR RADIO, December 1985-Page 45



POUNDING BRA

Marshall Emm, VK5FN GPD Bnx 389. Arie a de SA 5001

OUNC. N. ENDR

This month, i'd like to catch up with some of the dear to my heart — the unofficial, unsponsored and no-prizes-but-self-esteem competition to find the World's Biggest Key. We have two more entrantal I hope they will stimulate competitive activity out there, but it's necessary to remind you

once again of the rules of the competition .
" there are no rules. It is difficult enough to determine what constitutes a key, without worry-

ing about terms like 'biggest' "

First entrant is our friend Bill Martin VK2COP,
the Federal intruder Watch Co-Ordinator, who the Faderal intruder Watch Co-Ordinator, who wrote to comment on my column about intruders. Bill says, "Rarely have I ever undertaken an endeavour which has proved to be so frustrating, and lacking in finalisations. But the rain finally wears down the stone, and, even if we have the occasional success, then the affort has been worthwhile." I am sure all of you are grateful for Bill's efforts on our behalf, and will continue to we him your support

A flattering and welcome letter from Douglas VK4VLJ/MM, aboard the JAVELIN enclosed the artwork for a proposed QSL card 1 am not too sure of the degree of accuracy with which the drawing represents the actual communications facilities on the JAVELIN but, as Doug quite rightly points out — "... as you have taken a "no rules" position (most wise, et diplomatic (thanks, Doug)) i believe that a theoretical key is as valid as a physical one" That's true, I think, or at any rate appears to be within the spirit of the competition, but what we lack here is a scale. Without the measurements of the theoretical key, or at least of the actual JAVELIN, it is difficult to assess a ranking I mean, how do we know this nautical scene isn't inside a

theoretical bottle? Well much as I would hate to take the grand prize away from Doug on a technicality, you must remember that I am by birthright a genuine American, and we learned a thing or two about technicalities in the process of losing a certain nautical mug I am fore-shadowing a grand effort by the Adelalde Hills Amateur Radio Society, and ask you to bear in mind that, as the author of the rules, I am in a very good position to exploit them to our own advanta

Any other takers?
Changing the subject, the balance of opinion as to whether Novices could or should be granted CW-only privileges on other bands, judging by my correspondence, is just that — balanced. Some very strong points of view were expressed on both sides of the issue, but I think overall there was a sufficient level of interest to justify a look at it by Federal WIA. To this end, I will write to them at my earliest convenience (as we say in the business) and ask them to consider the matter

Opinion was not divided on the subject of a handbook for CW operators. The response was unanimously in favour, and those of you who wrote will. I trust, be pleased to learn that the negoions are under-way

My article on standards drew a lot of correspondence, and I was pleased that there are others who feel strongly about the future of CW. On that note. I would like to guote a large portion of the letter from Ken VK5PKP

"Obviously, you are one who perceives CW as in integral part of amateur radio. I would suggest that the majority of license holders today see it marely as a nuisance to obtaining a particular level of license, especially from Novice to Full Call. On the other hand, it can be seen as both a status symbol, ie, "I can work 20WPM," or by the amateur association as a covert way of keeping amateur radio pure. The latter I suspect. There is no real



reason for needing CW qualifications, nor for that matter is there reason for more than the bareet theoretical knowledge in order to become it-

"In fact, I would say that todays advanced schnology caters to the amateur in auch a way so to require only a basic understanding in order in operate Latest equipment requires knowledge equal to that of a microwave oven or video recorder. It is easy then to understand the ama service's peranoia about CW and exams. As for regulations, they are legislated to prevent inter-ference with other radio services, and with an exam, are an obvious way in which a government can regulate the amaleur service. CW today is an adjunct to that regulation. My applicates for these old arguments

"In any case, CW is not the popular force it should be, and to some, is only an interest in, perhaps, the same manner as GRP. So what is to be done to convince newcomers to our hobby that CW is equally as important and fulfilling as any other aspect of amateur radio? One thing, keep the mystique, but get rid of the mystery. The mystique of Morse code, enabling the world to establish communications early this century, is worth promoting, the fear that it is highly skilled and difficult to master should be denied. "Perhaps we could look at CW more in terms of

the international scene rather than just locally That is, code skills are a common requirement to most amateur services and because of different frequency allocations, could be the only way to communicate with select licensees abroad. I would support the idea of individual awards or certificates, but to me this might be 'preaching to

"What I personally would like to see is wider privileges for CW. I see no good reason why any licensed amateur should be restricted to any band here in Australia, but at the same time. here in Australia, but at the same time, appreciate both the DOC and WIA views on this. What about allowing, for example, those with Novice lice wider access to bands, CW only? It would be more rewarding to the Novice, and possibly stimulate them to further study. It may be the means by which limited calls mapful also become more involved. On the other hand, if I could work 20 and 40 metres CW I might never consider upgrading to full call. Oh well .

tting non-amateurs interested in radio in the

first place. The CR boom is over and we will have to get our act together if we want to preserve the bby. Get someone interested today One last light touch — the amiling chap's arch-





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SPOTURIT



Well, it is that time of the year again as Christmas has come around once more. On reflecting over the spectrum during the past 12 months, I can state that it has been extremely frustrating, due to the poor propagation on the higher frequencies. The maximum usable frequency has been often yery low, sometimes as low as 13MHz. The usually crowded 20 metre amateur allocation has been, at times, completely devoid of any signals, which is a

attle unusual On the other hand, the lower frequencies have been very good, especially the 49 and 60 metre broadcasting allocations. Although there were fewer Latins observed this winter there were some interesting signals heard, nevertheless. The propagation paths appear to be north-south as plenty of signals coming from Asia are being easily heard in fact, I have been surprised to hear Asians on 11 and 15MHz at fair to reasonable strengths during local daytime hours. This seems to emphasise the fact that propagation does indeed favour this path.

NEW STATIONS During this year, several new stations came on the air such as Radio Marti. This station is within the VOA, a though separate from it and broadcasts in Sosnish to Cuba, it mainly uses a powerful MW Spanish to Cuba, it mathly uses a powerful MW sender in Marathon, Florids, but siso the VCA ransmitters at Greenville, North Carolina on Hz re utilised. R Mart is easily heard here on 6.075MHz at 0930/UTC. Then another station was sunched later in the year called "R Fise Alphanistan". It is primarily in the Dan Isinguage and uses the RHE/RIL studios and facilities in Europe, with a 15 minute programme daily

We saw some stations remove some of the ong-running services. For instance, Radio Austrails discontinued their special Antarctica pro-gramming on Fridays during October Radio KGEI, in San Francisco, discontinued their Japenese programming from their schedule.

e also witnessed the unusual event of the BBC External Services going on strike in July for 24 hours, the first time in history. This was due to the banning of a television documentary on political extremiem, which resulted in all radio and terevision networks being blacked out in protest. Our own Radio Australia also had some programme disruption caused by industrial disputes within the ABC.

Also on the 17th October, a radio station was put off the air as a result of terrorist action. The religious station 'Voice of Hope', which is precariously situated in 'no-man's land' on the israel-Lebanese border, was put off the air by a suicide mission. The 'Voice of Hope' broadcests. on MW and SW, and has been heard in Australia. but on the unusual frequency of 6.550MHz, in

EXPERIMENTAL TRANSMISSIONS Over the next few month, several new stations are

scheduled to commence proadcasting on shortwave. These are mainly within the continental United States of America, and are either commer-Call or religious in content. Radio KCBI in Dellas, Texas has commenced an experimental trans-mission between 1700 and 2100UTC in the 25 metre band. Radio Earth International has been using their facilities for a three hour slot, on a

weekly basis Radio NDXE, n Birmingham, Alabama, should be commencing soon. It will be commercial and reportedly transmit in AM stereo. I regard this information with a pinch of salt as AM stereo is information with a prince or set as the assessed questionable, both from the commercial and technica stand-points. There are no HF receivers with AM stereo capabilities, so presumably they haven't a large audience to make it feasible. Also the fickle nature of QSB on a normal AM (DSB) signal on HF would presumably render AM stereo ess. And, what stereo format are they going to

use? There are three different systems, and the Khan system would be the most feesible, as the programme information is channelled into the lower and upper sidebands. Another hassle would be the congested bands and the amount of splatter from adjacent channels plus the "Woodpecker" pulses to contend with

OVER THE HORIZON

And white I am on about the Woodpecker, during October I did participate in a survey of the behaviour on-air of the Over-the-Horizon Radar (OTHR) pulses. I was allocated a frequency range of 17 to 20MHz, from 0900 to 1200UTC on a perscular date. Unfortunately, I didn't hear one signal during my sweeps because the MUF was down around 13MHz during that time frame. So it was very frustrating to only tune around and continuously hear a hies. "Woody Woodpecker" was about though, but on the lower frequencies that were not on my brief OTHR pulses were observed causing severe QRM to several broad casters, including the BBC World Service, and these were also reported

EXPANDED OUTPUT

Some international broadcasters have reci expanded their output. For example, the VOA-recently launched 'VOA- Europe' with a continuoue English service. However, you will not find it on MW or SW, for it is a satellite feed for various European cable broadcasters. Also, Radio Finland commenced an experimental service in German, as well as Radio Moscow commenced in

Scandinavian languages
Reception of the BBC World Service has bee difficult lately here, especially since Radio Moecow started to use their frequencies at the same time. For example, the frequency of 98-640MHz usually provides good signals from 05-45 UTC to Australaste, but now a Soviet station s on that channel till 6960 UTC, drowning out London completely Because of the indifferent propagation from the UK site, I have often relied on the BBC Mediterranean Relay from Cyprus on 9.580MHz. This is on about 0500 UTC, but is virtually unusable because Moscow is now co-channel with their "World" service, and Scandinavian programming

The Caribbean Relay on 9.510MHz is fair until 0845 when Algiers come up on 9.509MHz in French, leaving a nasty heterodyne on the channel. COupled with that, I am having difficulty hearing the BBC Far Eastern Relay from Singapore from 0900 UTC, on 11750MHz, because Radio Beijing is SkHz higher, broadcasting to Australia until 1025 UTC. Fortunately 15,070MHz is becoming reliable again, but at váriable levels

The experimental transmission from the BBC Eastern Relay, to this area at 0600 UTC on 21 550MHz, has not been observed very often This is because of poor propagation from Masirah leland. Also, the usually powerful irkutak sender, carrying Radio Moscow's World Service, on 21 530MHz, is well down, I rarely have heard many JAs either on the 15 metre amateur band. It is interesting to note that no broadcasters are now using the 11 metre allocation. I guess that they are waiting for the minima to pass before they operate there once more

YULETIDE MESSAGES

Around the Christmas period, many stations schedule special programming in loseping the Yuletide spirit. As I am writing this in mid-October, I have not received any advance information, so I m unable to give any details. I can say that the BBC World Service is likely to have the annual "Festival of Nine Lessons" from King's College, Cambridge, at approximately 0935 UTC, after The Queen's Christmas Message It will be on the usual World Service frequencies.

The Vatican Radio will broadcast Midnight Mass on Christmas Eve at 2230 UTC, from Saurt Peter's Basilica. No frequency deta is are at hand, but my recommendation is the 25 motre band, where it will probably be heard in Australia

Well, it only leaves me to wish you, and your families, al- the best for Christmas, and hope that 1986 will be happier than this year has been. All the best of listering, and best 73 - Robin

TECHNICAL REVIEW Amateur Packet Radio An article entitled "Packet Radio in the Ameteur

Service", has appeared in the journal of the Institute of Electrical and Electronics Engineers. The IEEE is an American society with membership drawn from the ranks of people involved in the various electrical, electronic, communications. and computing professions, its members reside not only in America, but around the world, wherever there is serious interest in things 'electrical

It is a tribute to the authors, Philip Karn KA9Q. Harold Price NK6K, and Robert Diereing N5AHD, that such an article on amateur' activities has been accepted for publication in such a 'professional' lournal. The article briefly describes the hardware used both the VADCG and TAPR Terminal Node

Controllers — and then goes on to discuss the development of appropriate software for the ama-teur radio environment. This is followed by some comments on moderns and modulation methods. Following brief comments on various experiments and exemples, there is a section on the use of salelities for packet radio. This section includes comments on OSCARs 9, 10, and 11, and 10, an

PACSAT, and JAS-1, and finally a brief comment The article is illustrated by a series of well prepared diagrams and appeared in the May 1985 copy of the IEEE Journal on Selected Areas in Communications, VOI SAC-3, No 3, pp 431-439 Many libraries carry the IEEE Journals and copies should be obtained through any I brary

This article was brought to our attention by Peter O'Connor VK4KIP who is a member of the HEEE

Condensed by Peter Garable VKSYRP



VERSATILE NINE-IN-ONE ANTENNA KIT An easily portable multi purpose antenna kit from Britian contains all the components that are

necessary to permit any of nine different antennes, covering HF bands, to be erected by one man in as little as ten minutes. The multi-purpose tactical antenna kit covers the frequency range, 16-30MHz, and is said to be far more versatile than other antenna kits of similar design. Components can be selected to provide omni-directional or directional characteristics for short, medium or long range communications and everything is contained in a small

canvas bag By using trees or available buildings, dipole, delta, base-fed wee, inverted "L" or sloping wee configurations can be rigged and the dipole arrangement can be made directional by using one element as a reflector Transmitter power of up to 500W can be used. From Information Technology from British. 19th August 1985.

NEW LOOK!!

A5 ATV Magazine has changed both its format and its name. The new SPEC-COM JOURNAL features a larger page size, and an expanded focus on all forms of specialised smalleur com-

munications Complete details of this new magazine may be attained by writing to Spec-Com Specialized Communications Journal, PO Box H, Lowden, IA.

From 73 for Radio Ameteurs -- August 1985.



ILISTIENING AROUN

Box 2121, Mildura, Vic 3500

deadlines. I will start my column this time with a

He's at a location, which has 14km of sea-front Harbour and Cape Jarvis, overlooking Kangaroo Handur and cape derive, overloading kanganasia lated I was speaking to him on 80 metres in mid-September and he spoke of hordes of tourists from Adétaide, anxious to get away from "The 8g Smoke", who do not realise the folly of dropping a used cigarette butt in the under-dry bushland. teven time off from milking 250 cows, and building

a fow per to speak with me MAN-MADE REACH

I told Pat that I was an ex-Sydneyite, and I haven't seen a wide stretch of ocean for more than a quarter of a century. Pat replied that he could not stand to live too far away from the cosan, and the wide-open spaces. (For those who may not know Burongs, where I live, is very much inland, and the next best thing to a beach around here is a menmade strip of sand by the Murray River). So, I envy Pat his nearness to the sea, especially on the blistering hot summer days when the temperature can hover around 44 degrees Ceissus.

HODDERNS SEASON

Much of our talk concerned the lush undergro which is now so evident, both here and at Pat's QTH and of the coming bushi re season Buronga is not really prone to bushfires, the last fires being about a decade ago when almost the whole of the far western region of New South bad, fire engines from Sydney and suburbe were sent to this area to seals the local brigades. distance of the best part of 700 miles (1126km) Many of the fires were thought to be deliberately lit, and at one point of time, there were as many as 17 fire arging on both sides of the Murray. Spotter aircraft and Army helicopters were also used in

Some valuable lessons were learned at the time. It was found that radio equipment aboard some of the vehicles could not operate on common frequencies. (I was not an amateur at the time, so could offer no assistance of worth, and only observe). It was the most devestating sight to behold to see kilometre upon kilometre of burni country-side when the fires were finally ex-tingulahed Many fires are caused by the careless. thoughtless act of dropping a cigarette butt on a day when the undergrowth is tinder-dry, and the

winds and temperature are just right for a major

LISTENING AROUND Recently, on 80 metres, someone remarked that AR, and saked why t wasn't in September's magazine I had to explain that I had missed the deadline and that It was about time I got in from of my typewriter again. Gordon VK5HM, who is fond of correcting me, informed me that I should have or cureouring me, morrised me max i should have said "when I get the typewriter in front of me" not "when I get in front of the typewriter" Pardon me Gordon but you must be right, as usual. Gordon is arways fibing me about my New South Welsh accent and pronounclation

Over the past few weeks, nightly conditions on 80 metras have been atrocious, to say the least. There have been times when I could hear Dea VK3BSB in Gippeland, whilst Alan VK3BRG in Sheoparton could not hear him or vice-verse. Also, communication between VKs 5HM, KV, GJ and myself, normally regarded as a short distance haul, was impossible. Yet, Paul VK2VJR, in Armidaie NSW, could hear all three. Another time, a Hobart station that I could copy very well informed me that whilst he could speak with me. he could not communicate with any other VK7 stations. Odd conditions, indeed.

Matters have not been improved at all by CW interference of plague proportions, however, we will leave that metter to another place, and time! !

NO PHONES (Tele-type)
Gordon VKSHM, is a person who does not like blephones — he say he has never had one, and never will. Therefore, in the early hours of the house of the h morning, when Tom VK6TR was mobile on a highway between Mount Barker and Albany, and called for assistance. Gordon could not help. It was then left to me to ring Tom's wile in Albany and ask her to venture out to pick Tom up as his vehicle had broken down. Within 45 minutes after was at his side, and they were both very grateful The sequel to the story was, Tom had only lestalled the racio in the car a few hours prior to departure and had not tested it on-air. Tom is an engineer at a selevision station at Mount Barter and was on his way home after working his shift.

AND AMATEUR RADIO DOES IT AGAIN! Several weeks ago, I just happened to switch on when I heard Walter in Parkes, NSW, calling me. It was pure chance that we happened across each other at that time, but we have spoken many times before and he knows my usual haunts on 20

Walter wanted me to try to catch up with a min bus, which had just passed through Mildura but as they were not equipped with amateur radio. could not see how I could help. It appeared that a person on the bus needed to be contacted by relatives in Horton Park near Sydney about a death in the family

However, Walter thought I may be able to pass a message into South Australia, where the bus was destined for in the hone that someone may sool it I felt the chances of this happening were very remote, so I would instead ring the Mildura police. Upon ringing them I was told that the bus had been located in Berri and the message had been passed on via police channels. I was then able to call Walter back and he passed the message back to Hoxton Park that the relative was now informed Meanwhile, an amaleur in Adelaide who had intercepted the Initial call from Walter and had duly notified the Adelaide police. Oh well It doesn't matter if we double up on these things.

just as long as the message gets through The telephone is often an invaluable asset in conjunction with amateur radio. On Friday 13th September, about 1710 UTC, I made a casual contact with Neville VKSNNH Neville and his XYL Norma, were operating portable from between Cober and Wilcannia, en route from Queensland to South Austraka

Neville told me that during their trip they had maintained regular scheds with another amateur, 74 years old Eddle, at Gonns Crossing on the Murray River, As it was some time since they had heard from him they were concerned of his welfare After Neville locating Eddie's telephone number, I was able to ring Eddie and had him come up on air to talk to Neville. How pleased they both were, and I was pleased that I had the facilities to help. Eddie had been working on a 1906 chaff-cutter that his son had brought around for him to fix, and not only did Eddie manage to fix it, he also found a 1906 engine to power it! A person I often speak with is Ken VK3DSK, of

Geelong. Ken is troubled with atmospherics and arthritis, neither of them are very welcome One morning, I was talking my head off, when right in mid-sentence, the lights flared very brightly, dimmed, flared again and then they were gone completely. I was in complete darkness, and,

Pandemonium! No torch, and where was the candle which was last used about six months ago? I did find a box of matches, but where was the phone book so I could ring the electricity authority at 2am on a very wet, and wintry finding a girmmer of light with a stumo of candle. I knew I should have written a number I ke that on the wall near the phone for emergencies

I sat and listened to a portable, battery radio for about two hours in the hope of the lights returning, but it wasn't to be and about I retired after turning on the mains operated radio so that it would wake me as soon as the power was back on This it duly did at 5am I never did find out why Mildura still had power and Buronga was in darkness, as we pel our power from VK3.

In the morning, I received a phone call from Ken in Geelong. It seems that Gordon VK5HM was in Geelong, it seems that Gordon Victims was concerned about my sudden departure from the air, and was worried I may have had a "bad turn," or worse. Thanks Ken, for ringing and caring. We radio amateura certainly take care of each other. As I have just made the deadline for the

December issue of Amateur Radio, I would like to wish all my readers and friends a very Happy Christmas, and may 1986 be a very happy, and productful year.

Cheers for now, and 73 until next time . . . VK2R.IX

Due to the fluctuating AS, an incorrect price was included in the GFS Electronic imports advertisement in November



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CONTACT US FOR QUOTES

Radio Amateur Old Timers Club





Can any Old Timer identify the missing name and call signs in the scompanying photograph. The photograph was supplied by Flay Carter VK2HC. As far as can be ascertained they are, from left — Matt O'Brien VK4MM, — Norville Timore Evans VK2HS. Howard Love VK2BM Flay Carter VK2HC. Aldowman J. Jackson Lord Mayor of Sydney, Phil Rephase Carter Section 1, 1975, 19

The photograph was taken by a Sydney Morning Herald photographer, on the balcony above the entrance to the Sydney Town Haff, circa 1931. The occasion was the WIA Federal Convention, hald in New South Wales.



LETTER FROM FATHER CHRISTMAS TO HIS BANKER

I'm sending this letter to tell you That crodit restrictions loday. Have robbed me of all my equipment My workshops, my reindeer, my sleigh. I'm making my rounds on a donkey, He's old, and decrepit and slow,

So you'll know, if I miss you this Christmas
I'll be out on my mule in the snow.
REPLY FROM HIS BANKER TO FATHER
CHRISTMAS

CHHIS1 MAS
Your message has caused us much sorrow,
A sorrow we can't drown in beer,
But wait till we really get going
On credit restrictions next year.
You're ucky to still have a donkey,
On which to proceed on your bund.

VICTORIAN ANNUAL RAOTC LUNCHEON The Annual Luncheon of the RAOTC in Victoria was held at the City and Overseas Club, on the 25th September. It was a most enjoyable function

DO YOU REMEMBER? Latest Dance His! Roll up the Rugal Sway to the pulsating lift of your favourite Metropolitan Orchestra

Dance in unison with ten thousand other gliding couples. Tag the limities either for the rhythmic harmony that awaits your "tuning in." Cunningham Radio Tube giv. Extra the series, that perfect re-creation of tone which you must have for the unison in radio enjoyment. Since 1915 — Standard for all sets. Types 6301A, C300, C11, C12 in the Orrange end Blue

This, and smilar advertisements, told the reader of Hugo Gernsback's magazine, RADIO NEWS in 1925, how magnificent was the sound reproduction of wireless. We even thought so ourselves. 60 years ago.

LOSS OF ASSISTANT SECRETARY
It is with sadness we record the passing, on 6th
October, of the RAOTC Assistant Secretary, Clem

Day VKSGY

Chem was a lovable character who carried out a tremendous amount of work for the Club behind the scene in conjunction with the Secretary, Harry on with the job was the philosophy, and this he did not not selected the scene of the selected of t

Heartfelt sympathies are extended to his family and friends. His work experience will be difficult to replace. His amiable nature will always be remembered.

SILENT KEYS

SILERI NA. 3
We reger the passing of the following RACITC
We reger the Batterh 1985.
Bill Bullivant WCRDC, Bonald Ride VK290C;
Jim Blackwood VK2ABL, Norman Chapman
VK3ANC, Citfl Pickering VK2ATP, Arthur Wilson
VK3CDG, George Turner VKGSIN, Clem Dy
VK3CGV, Denys Ayre VK3KP, Frank Nodan VK4FN,
Tid Hudson VK4MH, J. PRosewarne VKSMN, and

Harry Simmons VK6KX If readers are aware of the passing of a member who is not included in these notes, please notify the Secretary, Harry Clift VK3HC, in order that condolences can be sent, and records kept up to with 60 members present, gossiping about the early days. Many apologies, for non-attendance, were received.

ween received.

When members set down to turch they found at when members are allowed to them descripting and of the fills of one of our Club members and reviers of the fills of one of our Club members and reviers them to read the document and name the person concerned. When collected and verted, 17 members had pulged correctly, so a winner was forewn from a nat". Bob Clustringham Vicklit, was the highest person of the control of the con

an air-wound inductor

Amongst the answers were — 'It might have been me', 'Fred Nerk', 'Is it, I don't know', and 'Search Me' — which added some merriment to

Search Me — which added some merriment to the occasion.

The highlight of the luncheon was an audiovisual display, presented by Chris Long, a former Acting Curstor of Electronics at the Melbourne Museum, and well-known researcher into serior

accessed, custimer on Electronics at the Melbourne whiteless, sound recording, and emission radio. The display of sounds and stills intrigued to the display of sounds and stills intrigued Study's very settly sectificated in the 1800s with Mone code spart treasmessors, and paper tage Study's very settly sectificated in the 1800s with Mone code spart treasmessors, and paper tage South Yarea and reptition, in Victoria. The dockwork paper tage primers and cohear delectors. South Yarea and Employee, in Victoria of the work paper tage primers and cohear delectors were presented to the section of the Study of the Victoria the use of headphones sethy in the 2001 century led to recording fast Mone or view cylindrics and transmission on the BIBCs first station in

A broadcast by King George V was recorded and transmitted on the BBC's first station in England in 1924, and a copy of this was included in the presentation. The junction programme by Chris Long also

The luncheon programme by Chris Long elso included peecs from the early days of radio broadcasting and recording in Australia, the advent of 'electric recording', talking pictures, ambur transmitters on the broadcast band, and much more. A hearty voite of thanks was extended to Chris

much more. A hearty vote of thanks was extended to Chrislor his valuable and highly interesting presentation. A lengthy discussion and question time finally concluded another very successful Old Timers Luncheon.



AMATEURS SPAN THE ATLANTIC

Plunging sheed with an increasing amount of enthuseam in the exploration of the unknown radio territory in the vicinity of 10 metres, awateur radio operators have already accomplished transattantic communication on this wave-ength.

Attantic communication on this wave-ength. With the opening of this territory, dozens of amateurs hastened to construct transmitters and receivers to operate at this extremely low wave, with encouraging results.

The first actual trans-Attantic two-way communi-

cation on 10 metres was affected between C.K. Alwester NU.2IN, In New Jersey, USA, and Pierre Auschitzky EPSCT, France. These stations engaged in conversation for nearly half-an-hour will good signal reports, both ways. Neither station was using high power.

The above ment has been condensed from Harn Notes.

The above report has been condensed from Harn Notes Radio, 18th July 1928, and was contributed by Peter Alexander VICEPA.

OLD TIMER IN 1928

Mr. Crocker 28B is one of the object transmitters in Australia. He first got a licence in 1911, when experimental listening- n tickets were issued, but were cancelled when war broke out. When peace was signed he took out an amateur experimental transmitting licence. At that time there were only a handful of others operating, amongst them 2CM, 2JR, 39C, who were the most enterprising.

In the old 240-metre days, when there was not any broadcasting stations on air, 2BB, with 2CM, transmitted some great Sunday night concerts, and 2BB claimed to be the first amateur to put phone signals across to New Zealand. Conderved from Ham Notes, Radio 150th July 1928, and contributed by Piese Maximide VICEPA.





Joy Collis VK2EBX PURLICITY OFFICER FOR ALARA

PO 8ox 22, Ynoval, Vic. 2868



Mary KB6CLI

air that, with the OMs help, the 80 metre serial was strung from the highest available point — in this case the mast of a boat moored on the back of a trailer in the driveway. It did the trick until something more permanent could be arranged.

ALAGA CONTEST

Our thanks to all who were active in the ALARA contest, especially the OMs who joined in. Without participation, of course, there is no contest, and the ALARA Contest is noted for its

friendliness. Logs should be sent to Marlene VK2KFO, 31 Cadell Street, Wentworth, NSW 2648, prior to the 31st December 1965. Novice YLs — please mark in RED or otherwise Indicate your CW score for the Mrs McKenzie CW Trophy Award

WEEKLY NET

Don't forget the official Monday night net, which is held at 1000UTC during daylight saving. The frequency is 3.580MHz +F QRM There will be no monthly general meeting in December. So many other activities claim our attention at this time of the year that it was unanimously decided it should be cancelled

GRAWA AWARD

A slight alteration has been made to the ALARA Award Rules They should now read: - 10 members to be contacted and to include five Australian call areas DX - Five members to be contacted and to include four Australian call areas

SUBSCRIPTIONS DUE

It is that time of the year again, and subs are now due. This year it is \$6 for VK members, \$6 for DX sponsorships with the newsletter going airmail and \$4 for it to go surface mail.

Whilst on the subject of sponsorships — sponsoring an overseas YL is a wonderful way to make new friends. If you don't know anyone yourself, please write to the Sponsorship Secretary, Jessie Buchanan VK3WAN, 4 Milliord Crescent, Karingal, Vic. 3199. Jessie will be able you. Frequently sponsorships are reciprocal

NEW MEMBERS

Welcome to new members — Betty VK4BET, who joined on 24th September, and Muriel VE7LQH.

who joined on 10th October. Munel was sponsored by Helene VK7HD. From lusty infancy in 1975, ALARA has grown to be quite a big girl by her tenth birthday. May 1986 see even better things.
A very Happy Christmas to one, and all 33/73 Joy VK2FBX

WARNING ELECTRICAL

SAFFTY

An average of 80 Australians die each year in electrical accidents many of them occurring in The Australian Consumers' Association (ACA) said the growing use of hair dryers, do-it-yourself power tools and power boards containing extra electrical sockets, was creating new hazards

In a special guide on living safely with elec-tricity, in its journal CHOICE, the ACA seid extension leads and other lead accessories were the biggest k lier group, accounting for nearly one third of the deaths

A number of people, most of them young, had been killed when hair dryers fel into baths

RESTRAINTS REMOVED ON HOUR BROADCASTING

Television and radio stations can now broadcast 24 hours a day without the need to seek specific permission from the Australian Broadcasting Tribuna

Under amendments to the ABT policy statement on "Hours of Service" a iconsec may transmit reduction of more than 25 percent in its average weekly hours of service, the licensee is required to explain the reduction.

TEST **EQUIPMENT**

AUSTRALIA'S LARGEST RANGE OF SECOND HANDS

> Hewlett Packard Tektronix Marconi Solartron Boontoon BWD Bruel & Kiaer

Oscilloscopes, sig gens, spectrum analysers, multi meters. Wide range of amateur and communications equipment - valves, coaxial connectors and test accessories. Repairs and service to all makes and models

ELECTRONIC BROKERS **AUSTRALASIA**

20 Cahili Street, Dandenong (03) 793 39 168 Elgar Road, Box Hill South, Vic. NITE (03) 288 3611

AMATEUR RADIO, December 1985-Page 51



Akiyo JH1GMZ and Fumio JA1BAR.

Well our birthday year has been a memorable one, with more YL activity than ever, and gettogethers, parties, and luncheons to celebrate has been a good opportunity for ALARA members, OMs, and families to get to know each

other personally, and put a face to the voicel One thing that distinguishes those involved with amateur radio is that they have no difficulty finding a topic of conversation. None of those After all, we already know each other, don't well

awkward' pauses on meeting for the first time It is good to see so many really keen YLs. One (who shall remain nameless), having shifted to another location, was so anxious to get back on-



Here we are at the close of 1985, and we can now look forward to 1986, hopefully a very good year

for everyone I would like to extend, to all amateurs and SWLs the very best for the Festive Season, and a special thank you to those clubs, and individual amateurs who have provided me with copies of their awards throughout the year Good hunting in

1986 Are Australian awards easy, or hard to obtain? There has been a lot of on air discussions about poor propagation, etc, but Ivan ZL1AQO, has collected 77 Austra-ian Awards, all on 80 metres. Congratulations Ivan

P S CUMBEROONA AWARD At the turn of the century, there were over 300

paddle steamers, and steam boats operating on the Murray, and Darling River systems. Presently, only a few are operating, and provide an opportunity for tourists to travel the River Murray

A new peddle steamer has been designed, and is being built at Albury by Warwick Hood. This will be the first designed and built since the decline at the beginning of the century.

To commemorate the launching of this vessel, the Twin Cities Radio and Electronic Club are sponsoring an award, to be called the PS CUMBEROONA Award

Award requirements are: All HF bands, except 160 metres, for a 24 hour period only. One contact to be made with VK2EWC — SWLs to log the

information of the station working VK2EWC Log extract to be forwarded together with \$2 to: The Awards Manager, PO Box 396, Albury, NSW. 26110

Unfortunately, the format and printing of the award, nor the date have yet been finalised, however it is anticipated to be sometime in later this month Arrangements will be made by the Club to

inform amateurs and SWLs of the date, per medium of WIA Sunday Morning Broadcasts

INTRUDER WATCH CERTIFICATE

Over the years, many dedicated amateurs, and SWLs, have devoted many hours logging in-truders in our bands. Now their efforts may be rewarded with the issuance of an award, in the form of a MERIT CERTIFICATE, as some recognition of the work they have performed on your behalf I hope that this may encourage many others to take part in intruder watching.
The Certificate measures 335 x 255mm, with

the WIA logo in red and blue, a blue border and black printing, on good quality white paper.
The Cert ficate marks the acknowledgement of the WIA on a Federal level, to the good work done by ind vidual amateurs, and SWLs, to further the cause of the Intruder Watch in to endeavour to monitor, and cause removal, of offending Govern-ment, Military, and Commercial radio stations who continue to offend by transmitting their signals on radio frequencies where the amateur service has been effocated primary, or exclusive rights.

The Certificate is allocated on a once only basis, and any individual amateur, or SWL can only qualify once. It will be awarded annually to the Ind vidual amateur or SWL in each Division, who has demonstrated outstanding support to the Intruder Watch, with consistency being more of a criterion, than quality

It will be signed by the Federal President of the WIA, and co-signed by the Federal Intruder Watch Co-Ordinator of the time. Certificates will be consecutively numbered. Help preserve your bands by submitting reports to your Divisional Intruder Watch officers, or to the

Federal Co-Ordinator Listen around the bands, and as there is mainly poor prepagation, there seems to be many more intruders. If they are not removed, imagine the effect when we once again have good conditions



ALARA AWARD (revised)

Rules for the ALARA Award have been revised. Following are the new rules. The Award is svallable to all amateurs and SWLs (YLs and OM).

Australian and New Zealand amateurs are required to contact 10 ALARA members, and to include five Australian call areas.

Overseas amaleurs require contact with five members and include four Australian call areas All contacts must be made with members on or after 30th June 1975, and no repeater contacts will be accented Applicants must submit a complete extract of

log entries, which is to be verified and signed by two other ameteurs. In the event of an applicant in an isolated location being unable to obtain verification, OSL cards should be forwarded in fleu.
The log should show Date/Time UTC, Band, Mode, Call Sign of ALARA Member Contacted, Report Sent, Report Received, Name, and must include applicants Full Name, Address, Signature, and Call Sign All contacts must be made from the same call

Official ALARA Net contacts do not qualify

Special endorsements are available for Mixed, All CW, All Phone, All 28MHz, etc. Endorsement stickers are available for each 10 additional members contacted for VK and ZL stations, DX stations require five additional member contacts.

Applications should be forwarded to: ALARA Awards Custodian, Mavis Stafford VK3KS, 16 Byron Street, Box Hill South, Vic. 3128, and accompanied by A\$3, 7 IRICs, or equivalent for initial award, and A\$1 for additional stickers. (No fee for stickers awarded with the original issue of the Certificate, only additional stickers applied for

AUSTRALIAN RAILWAYS CHARTER

The Australian Railways Charter offer amateurs, and SWLs, a number of very attractive awards. So far, 63 Charter Certificates, and 142 Associate Certificates have been issued. Surplus moneys from the issue of these certificates have enable the Charter to donale \$300 to the National Heart Foundation





A group of railway employees, all radio ama teurs, of the railways of Australia and retired employees, joined together to form the Australian Railways Charter on 9th March 1980. There are four certificates available which any amateur or SWL may apply for These can be obtained by working Charter members, or award holders, on any band or mode. These contacts may be hard to

AUSTRALIAN RAILWAYS CHARTER



obtain due to the varying shifts worked by railway employees.

For membership of the Charter, members must be present or retired railway employees, and nead nally to apply to the Awards Manager, guing details of employment. Honorary membership is extended to retired, or serving members of overseas railways. Membership is the lesue of the BASIC AWARD from which the Charter number is ob-

Associate members are non railway employees who qualify, and apply for the certificates.

BARIC AWAREI
Six contacts comprising three Charters in three different states, plus three other award holders

DX stations require three contacts, comprising one Charter, plus two other contacts.

WHISTLE STOP AWARD

Basic Certificate must be held, plus 50 points.

WIT AWARD

Recultes 200 points

Requires 200 points. 25/25 AWARD Work 25 Charters and 25 Associate Certificate holders.

TITLIEN SUIT E AWARII
To obtain this award the operator must hold the VIP Certificate, and must contact 10 members on one band or mode, is 10 metres or 15 metres, or CW, etc. or make contact with five overseas

CW, 4tc, or make contact with five overseas members on one mode. These stockers may be paced on the VIP Certificate. There is no charge to these Spikes, but a SASE is a must Golden Spike is available for Net attendance. These are for every 25 nets stoned. Logs must show Certificate number, points, station, name, location data, and frequency.

station, name, location date, and frequency. Fees - All Certificates S3 (DX add 2 IRCs), except 25/25 which is \$2 (DX add 2 IRCs). Points value — Charter . five points (or one contact towards Basic). Associate the points. Whatle Stop . two points. VIP . to points.

25/25 one point
The Australian Ra Iways Charter holds a weekly
net every Sunday at 1030UTC, on 3.608MHz ++
CRM

QRM. Inquiries and award applications to: Han Frundt VK5NHF, Box 87, Tailem Bend, SA 5260. SOUTHERN CROSS AWARD

The new version of this Award, issued by the Eastern and Mountain District Radio Club, sho ovallable to licensed amateurs, and SWLs, who obtain the required number of points. Applicants must hear or work Club members. Contacts on or after 1st September 1985 are valid VK stations require a total of 10 points.

DX stations, including VK9 and 0, require five



only of the Club call signs is worth two points, with the other Club call signs worth one point each, if included in the same application.

A member can only be claimed once per application regardless of upgrading their call sign. The only exception is the person operating the Club call sign, who can be claimed under that call as well as under their own personal call sign. Cross mode and cross band operation can be

Cross mode and cross band operation can be claimed, but not repeater contacts. A list of current members cell signs will be forwarded to anyone requesting same, upon receipt of a SASE (loolscap size) for VK stellons or 2 IRCs from DX statings for authrali return.

QSL cards are not required, but an applicant must submit log extracts, certified correct and signed by two licensed amaleurs. Full name address, call sign, and signature of the applicant are required, together with the necessary fee which is ASE per equivalent, or S IRCs. Distations to add 2 extra IRCs if return by armal is All correspondence to The Awards Manager.

EMDRC, PO Box 87, Mitcham, Vic 3132
Club Nets are held Wednesdays on 3.572MHz
+ I, at 1000 UTC, and Sundays on 28.475MHz + I
at 1130 UTC

LABRE AWARDS

The Ligit de Armadores Brasileiros de Radio Emissas — LABRE, to encourage interest in the Brazilian. American, and Allaino Coean areas, and DX on the lower bands, sponsors the following awards for radio amateurs. WMP (Worked All Brazil), WAA (Worked All America), WMO (Worked All Coeans), and the OBDX (Oploras Brasileiro de DX — Brazilian DX Award).

THE WAB AWARD is available to amateurs that confirm contacts with Brazilian stations in all 23 States, and the City Capital — Brasilia

(PT2). A special ribbon (TBT) will be attached to the award to confirm contacts with the two Brazilian Federal Territories (Amapa and Roraima)

and 21 countries of the Atlantic Ocean THE WAA AWARD is available for confirmation of contacts with 45 countries in the American Geographic Area. One of them must be with Brazil.

THE DBDX AWARD is available for confirmed

If the UBU AWARD available of continued to countries, as shown in the official DXCG is one of the countries must be Brazil. Special stakes are available for additional countries in groups of 10, to be attached to the Award countries in groups of 10, to be attached to the Award bands only. There are three different kinds of Certificates for this award. One for Prones CM one for Prones CM and one for Prones CM and one for Prones CM and the CM only All sewards sound will be legit on an incountry of the CM one for Prones CM and the CM one for Prones CM one for Prones CM on the CM one for Prones CM one for Prones CM one for Prones CM on the CM one for Prones CM one for Prones CM one for Prones CM on the CM one for Prones C

operating in authorised amateur bands.
All contacts must be from the same location except when a station moves from one call area to another, then all contacts must be made from within a radius of 150 miles (24 Hring from the initiel location.

All contacts must be with land-based.

stations Contacts with shps, anchored or otherwise, and arcraft are not allowed Contacts over a period of years are valid providing they have been made under the provisions of the current rules and with the same station license

All confirmations must be submitted exactly as have been received from the worked station. The log must be verified by the Awards Manager of the applicant's country. Wheel there are no managers available, the log may be checked and signed by two licenced amateurs.

Compliance with international conventions, national laws, and the rules in force, far play and good sportsmanship in operating are required by all operators applying for these Awards.

All applications must be sent to LABRE

All applications must be sent to LABRE Headquarters, Awards Menager, PO Box 07-0004, 70000 — Brasilia, DF, Brazil, enclosing 10 IRCs for handling cost. The decision of the Awards Division of

LABRE shall be final

The "Federacion de Clubes de Radioaficionados de Chile" has three awards available for amateurs.

smaleurs.
Send a GCR list showing Station, Date, Time,
Band, and Mode certified by any official radio club
in the applicants country. Similar rules apply for
SWLs on a heard basis.
Cost is 10 IRCs for postage

Cost is 50 IRCs for postage All correspondence to The Awards Managor, FEDERACHI, PO Box 2545, Concepcion, Chile ARCE AWARD, RAIDE AWARDS ARCE AWARD, PO Box 2545, Concepcion, Chile acut of the 30, 40, 20, 15, and 10 metre bands as each of the 80, 40, 20, 15, and 10 metre bands 100 CF station in the same mode. The third award is for six metre operation which the third award is for six metre operation which

is not applicable for Australia.

SPECIAL EVENT
On 1st December 1985, the Ninth Annual
Pasadena Parade will be operational. They will be
operational from 2000 to 2200UTC on the lower
15kHz of the 20 metre band QSL to WARMUK,
23 N Jake Avenue Pasadena Californa IISA.



INTENSITY EQUIPMENT

The Vicom Group has announced it now rep-resents Kyoritsu of Japan with their range of kyoritsu was established in 1948, and is a respected leader in the industry with products

including RFI Field Intensity meters to 15GHz, EMI meters to 1GHz, Disturbance Analysers, plus a range of broadband and tuned dipole antennas. also have considerable expertise in shielded room design and manufacture a number of sizes

or sizes.
Full details of the Kyoritsu range of products may be obtained from the Vicom Group Offices in Melbourne, Sydney, Brisbane, and Wellington, or telephone (03) 82 6931.





IN-LINE SWRIPOWER METERS The new Yaesu YS-80 and YS-500 are handso

compact, multi-function instruments for monitoring both average and peak transmitter power output and reflected power, and voltage standing wave ratio (VSWR) of antenna systems in two-way radio stations from 1.6 to 60MHz (YS-60), or 140 to 525MHz (YS-500). The small size and colour co-ordinated cabinets

make these units ideal additions to any Yaesu transceiver Three functions provide monitoring of either forward or reflected average transmitter output power for CW, AM, FM, and FSK modes, or peak envelope power (PEP) for SSB modes, and VSWR for testing and monitoring the performance of transmitting antenna systems

The efficient, linear circuit design assures accurate measurements with minimum insertion loss over the entire specified frequency range, even at low power levels. For more information contact Bail Electronic Services, 38 Faithful Street, Wangaratta, Vic.

STEREO SYNTHESISER

A stereo synthesiser, the MFJ-1501, designed to provide high quality synthesised stereo from a levision or video recorder, is now available in



output of a VCR or across a television speaker and the AUX input of a stereo system. The technique used to derive the stereo is similar to that used by most TV stations when operating from a mond source. It is also the same as record manufac turers use when they produce a stereo record from an old mono recording.

The effectiveness is so good that a sense of speciousness is conveyed, which puts the viewer right into the middle of the movie scene without having to outlay the many hundreds of dollars

required for a new stereo television or video.

The MRJ-1501 is equipped with two mono inputs which are switchable, and allow for other sources to be used, such as a portable electronic organ AM radio. Operation is from 240V AC or 12V DC for portable/mobile operation.

The unit is finished in egg shell white with

welnut grain sides, and measures 126 x 50 x 152mm. Price at \$305 including postage within Australia, the MFJ-1501 is available from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777



GFS Electronic imports have announced the availability of a unique 'add-on' device which provides the Illusion of large theatre sound to a video recorder, television, or Hi-Fi system in the

The MFJ-1500 provides this sound by electronically processing the source signal, in-cluding the introduction of variable time delay and reverberation, the characteristics of a large listen.

ing environment.
The unit accepts a mono or stereo input and produces single processed, as well as unpro-cessed outputs, both of which can be fed into the two channels of a stereo amplifier.

For users who do not have a stereo system the MRJ-1500 has its own built-in two wett amplifier. A single speaker is connected to the MRJ-1500 speaker terminals, and placed behind the viewing

position. This speaker, in conjunction with the TV's speaker then provides viewers with the Busionment of big theatre sound. A special price of \$250 plus \$14 p&p is applicable if this article is mentioned.

Contact GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

RF VIDEO MODULATOR A new RF Video Modulator, the MEJ-1431A converts video and audio signals to Australian VHF Channels 1 or 3. These video/audio signals from units which do not have a built-in RF modulator, such as computers, video cameras, image enhancers, or distribution



etc) can then be monitored on a standard PAL colour television set The MFJ-1431 is set to accept standard level video and audio signals, although internal level controls are provided to cater for the situation where non-standard levels are presented to the

where non-standard levels are presented to the modulator Input and output mpedances are 75 ohms, via RCA sockets, or 300 ohms may be achieved by using a belundwitch, which is supplied All the necessary cabling is provided with the unit. Operation at from 12V DC, or from an optional 12V, 300mA AC adaptor. The price of the MFJ-1431 is \$215 plus \$7 p&p and is available from GFS Electronic Imports, 17

AcKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777



Most antenna noise bridges on the market today

provide only a limited reactance measurement range up to 300 or 400 ohms. Some others don't even give their user individual inductive and capacitive reactance readings, only a combined The MFJ Enterprises Model MFJ-202B provides the ability to measure both measurements up into

the thousands of ohms range. It can also measure resistance over a s mi ar rang These wide performance parameters have been

achieved by incorporating a switchable range expander in the MFJ-202B. With the range expander switched in, measurements of resistance up to 3 800 ohms, and both inductive or capacitive reactance up to 1900 ohms may be made Frequency range extends from 1 to 100MHz. Each MFJ-202B noise bridge is individ calibrated and provided with a calibration chart

prior to leaving the factory. A comprehensive manual, which is also supplied, covers such subjects as 'Finding Antenna Resonant Fre-ouency', 'To Cut a Half Wave Dipole to Reson-of RF Amplifier Impedances, 'RF Transformers and Baluns', as well as 'Capacitance and Induct-The MFJ-202B simply connects in series with

the receiver, or transceiver antenna line, and the circuit under measurement. Power source for the carcuit under measurament. Power source for the bridge is an internal nine volt battery. Priced at \$193, plus \$7 p&p, the MFJ-202B is available from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132 Phone (03) 873 3777

PART TIME!

A man with all the earmarks of a laborer was smoking thoughtfully and watching a large build-leg in the process of construction. A foreman

approached and asked
"Hey, want a job?"
"Yes," was the reply, "but I can only work mornings "Why can't you work all day?"

"Every afternoon I gotta carry a banner in the unemployment parade." From The Victorian Railways Magazine, September 1927. Vol 4

Page 54-AMATEUR RADIO, December 1985

AIMING HIGH

WITH COMMUNICATIONS ACCESSORIES FROM GES

SCAN THE BANDS WITH DUR **NEW SX-155**

erage of 26-32 58-88, 138-176 and 380,514 MHz with a sensitivity of less than 0.5 uV Four banks of 40 memory channels total of 150 memones High eran aread of 16 CH/SEC. Auto search and store mode. Priority channel 4 hour life on supplied Nicad batteries 24 Hour clock. Selectable Scan/Search detay of O.1 or 2 seconds Includes Nicads



charper carrying case & antenna CONTINUOUS COVERAGE 25-550 MHz SCANNER

LOW LOSS FOAM DOUBLE SHIELDED

COAXIAL CARLE

OSS IN DB 30 METRES 200 MHz | 400 MHz | 900 MHz

1 44

1.40 1.80

FR SERIES CARLE & N CONNECTORS

Even want continuous nov erage AM FM wide &

0 99

084 12D-FR

1 95 RG B/U

\$4.20 m

\$6.30 m

58 70 m

50-FB 8D-FR 1 20 1 74 2 58 3.90

10D-FB

I DE 450

50.00

BD-FR

10D-FB

parrow with 20 memories we suggest you choose the AR 2001 from GFS SPECIAL \$599 + \$14 pag inc

AC adapter

1 80 2 79

NA 7 44

NP SDFB

NP 10DFB

NP 120FB

ANTENNA MATCHER FOR CONTINUOUS HF COVERAGE - MFJ-941D

power meter 4. Rain and will



2 KW DUMMY LOAD

MEJ 250 Low SWR to 400 MHz 3 KW PEP supplied with transformer

\$89 + \$140 £ D

EXPANDED RANGE OF HE VHE LINE ANTENNAS

CRY 1



CANCIDIRECTIONAL ANTENNAS FOR SCANNERS

ANTENNAS \$199 + \$14 940 \$139 + \$14 pap HE BROADBAND

DIPOLES

200 WATT MODELS priced at \$145 + \$14 plip 2KW MDDELS

0.0 \$193 - \$14 P&P

CON-1 11 ---discore 63482 MN/ \$145 + \$14 p&p SCAN X Extense forms

\$92 + \$14 p&p 2 metre RINGO

\$94 + \$14 P&P GIVE YOUR RINGO ANDTHER 1.548

> \$23 + P&P FOR THE RTTY

\$142+\$6 p\$p (Kit) o \$219 plus \$8 pap (assembled) MFJ-1224

.....

VHF-UHF SWR-POWER METER

3.30

\$12.00

812.40

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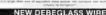
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UR CORNER

DEVIL NEWS FROM THE NW BRANCH Hello once again to all, and to all the people on the North West Coast that read this column each month, it is hoped that it fills you in on some of the activities of the Branch, especially those unable to

nd meetings attend meetings.

At the last meeting, 25 people attended, plus some students from the Devonport High School, including one YL. The vialt was part of their Artivities Week, and they were made very wei-

Much discussion was held, continuing from last month, regarding the problems involved in the eraction of towers in the town area.

There were 85 QSL cards inwards and 110 outwards this month Any member unable to attend a meeting to collect their cards may send a SASE to Max, QTHR as VK7XMF, and he will post the cards to you e carde to you.

A request has been received to again provide

communications for a horse trial. This is a worthwhile exercise and will be a combined WICEN exercise Unfortunately, the 70cm ATV serial has to

under-og a re-build, as it has had an altercation VK7NW RTTY Broadcasts have been heard in

Hobart, with a good report received from VK7HV
The Group's WICEN Officer gave a brief lesson The Group's WICEN Officer gave a brief telson on map reading, which proved very popular, and it is amicipated to have another one shortly. Bob VRTARD and Kirtly VRTAC operated from Guilford during JOTA whilst Bon VRTRIN, with a group of Guidee and Brownies, operated from Devonport

There are several members of the Group lowing an Interest in Packet Radio, VK7s AX, KDR. ZAP WP, WN and WZ are starting to get this

medium on the air, so if there are any other members interested, please contact Tony VK7AX Welcome to new member — John Clayton A planc was planned at Bells Parade, Latrobe for the fourth weekend in November Hopefully it was a success (as these notes are being compiled

in mid-October), and another picnic trip on the Pseman River Farry is being planned for later this month/early next yea

The Clanger Award for the month was presented to Bill, an SWL, for lending a rig to monitor a news broadcast without a power lead. It was then necessary to explain the Clanger Award to the visiting students.

Tony VK7AH, a teacher at the High School, as well as attending the Branch meeting, took his

electronics class to the East Devoriport Ferry Terminal where they were conducted on a lour of the Able Tasman Radio Room. The students have their own call sign, VK7DHS. Members of the Franch have attended the school to speak to them about amateur radio

VK7SF recently returned from a trip to England, spoke of his visit to the location where the first Spark Transmissions took place. Following the light, a video was shown of Hamlest 85 and the Transmission re-enactment by DOC at Hobart earlier this year Contributed by Max Hardsteff VK7K1

ANNIVERSARY CELEBRATIONS

The VK4 Disabled Persons Radio Club, VK48TB, celebrated its Second Anniversary in September, with on-air activities from the QTH of Roley VK4AOR

Amateurs were in attendance from Toowoomb and the Derling Downs, as well as Mount Tamborine. Margaret VK4OK, a White-Stick operator from Brisbane, helped to make the day a great success.

Disabled members of the Help Handicapped Enter Life Project (HHELP), the parent body of the

Club, also joined in the celebrations. Contacts were made with amateurs in New Zeeland, Suva, Japan, Europe, all Australian



From left — Des Orr, Margaret VK4QK, and Graeme VK4NYE. states, and some of the smaller Pacific islands

Margaret was also able to apeak with man counterparts in New Zealand and Australia The Club worked on all HF bands, making in success of 50 QSOs. Ray VK4ACU made a few CW contacts, and Ron VK4AGS had a computerised

system operating when conditions permitted Following the death of Tony Burge VK4BAC, a young man suffering from Muscular Dystrop who derived great enjoyment from ameteur rad his family donated his equipment to HHELP. The

Daniel Delivers Used Versell Since its opening on 24th August 1983, the Club with the main aim is to introduce and involve disabled persons in the hobby, has had a steady membership growth. Today there are over 100 sporoximately 40 of whom Name and

ekly contacts on the Friday evening Net (3.590MHz +/- ORM) are kept with disable negators from all states of Australia, as well as ow Zaaland

Blindness, Multiple Scienceis, Quadriplegia. Cerebral Palsy, Polio, and even severe speech impediments. When speech become difficult to understand, or embersassing, CW can be used to great effect The Club is considering the possibilities of

saking all disabled individuals, clubs, and other interested operators to participate annually in 'onair' activities on a suitable date close to the Club's anniversary. It is also pondering the feasibility of circulating a questionnaire, with the idea of compling lists of amateurs prepared to help disabled people with their study, as well as peneral assistance for disabled persons. By centralising such information, it is felt more people could become involved theraby not only achiev more operators on air, but a greater awareness of disability, which can only lead to more people participating equally. Any comments from amateurs Austrake-w

would be appreciated. Write to the Club at Box Town Hall, Toowoomba, or phone VK4AOR on (076) 96 7587, or Graeme VK4NYE (076) 30 8323. Contributed by Roley Horgaard VK4AQF STATION MANAGER VK46TB

WESTERN SUBURBS RADIO CLUB On 7th September 1985, the Western Suburba Radio CLub and the North East Radio Group combined to present the "Lakeside Hamfest" The Hamlest was held at the Western Suburt

RC meeting rooms, at picturesque Edwardes Park Lake, Reservoir With perfect weather, and a wide variety of activities, it was the ideal setting for many amateurs and their families to meet others in a relaxed social atmosphere. Attendees had a chance to view a wide selection of equipment provided by a comprehensive trade display Hamfest traders and buyers were kept busy ns were plentiful at the Pre-Loved

trading in pre-loved equipment, with many buyers clutching prized acqueitions, whisking them off to the safety of their motor vehicles, then returning for more goodles.

One special guest was Her Worship, the Mayor of Preston, Councillor Helen Davis. Councillor Davis, tooether with her husband Chic, strolled casually around the displays, asking questions, and mingling with the many other visitors. Councilior Davis expressed keep interest in the work of both radio clubs, and the hobby of amateur radio. Although not initially aware of the value of amateur radio in its many guises, and the poputarity of the hobby, Councillor Davis gained invaluable knowledge through visiting the Hamilest, and has pledged practical support for loom Australia, Am-Comm Electronics and

Warner Wulf kindly donated some equipment to the clubs for use as prizes with Ted VK3ZKP and Gootl VK3XUK being the eventual winners



in tow. The little T Shirt reads: 'My grandoa





whilst his daughter is horrifled of 'more lunk around the shack'.





the Mayor of Preston and her husband.

Undoubtedly, the highlight of the day was the ladio Throwing Contest' Ten ladies entered this 'Radio Throwing Contest' Ten ladies entered this prestigous event, and the judges. Richard VK3CRH and Mark VK3PI were forced to modify the rules as the event proceeded. The results

Longest Distance . . Gayle Stephenson, XYL of VK3PI. Largest Divot . Pamela Gill

Smallest Divot . . . Val Henderson. First to Breek the Radio Marg Baxter, XYL of VK3DBQ First to Make a Piece Fall off the Radio . Betty Page, XYL of VK3AGH

Throwing styles were unorthodox, to say the least, but all participants, and amused spectalors, enjoyed the event. Winners were presented with WSRC/NERG Certificates.

The Hamfest was a great success, and plans are already being made for another one next year. Thank you to all for making the day such a BUCCREE Contributed by Mark Stephenson VK3P1



MICRO AND TELEVISION PROJECTS

John Ingham VK5KG FEDERAL VIDEO TAPE CO-ORDINATOR

Australia who has not yet heard of the British Amaleur Television Club and their magnificent A technical description of the Sinclair 'Specpublications? Well. If YOU are such a person, read

For more than 32 years, the BATC have pub-lished their quarterly magazine 'CQ-TV', and over the years it has become the 'ATVers Bible'. While there have been other magazines available, which feature ATV. CQ-TV has consistently provided in 1981-2, the BATC produced volumes one and two of the 'Ameteur Television Handbook', each

having almost 100 pages crammed full of completely new projects designed by a team of angineers headed by Trevor Brown GBCJS. Every aspect of ATV was addressed and while the two volumes were universally recognised as the definitive works on the subject, they were recently updated by 'The Revised Amathur Television updated by Handbook

And yet, in 'Micro and Television Protect Trevor has again produced, what is, except in name. Volume 4 of the series. This time, reflecting the current ATV trends, he has expanded the scope of work to include circuits which allow micro-computers to become integrated into the ATV shack.

Following is a list of the topics examined within the booklet

CHAPTER 1: A Simple ATV Station Test Pattern and Sync Generator* Electronic Caption Writer* Simple Vision Switcher

CHAPTER 2: The Best of the Handbook Electronic Testcard
PAL Encoder*

CHAPTER 3: SECAM Encoder CHAPTER 4: The Home Computer

" Spectrum User Port" Computer Controlling Character Generators Spectrum EPROM Programmer"

RS-232 EPROM Programmer Spectrum Picture En Teletron Hamshack Micro-Controller Teletron VDU Ham Text — an Amazeur Teletext-like System ried Circuit Boards (PCBs) are systems for the projects

nemeted
As compared to the very wide range of topics
covered in the handbooks, (Aerlals, Feed-lines,
Tuerer, Recovery, Trammitter, Michalater, Processing Ampelliers, RF Probes, Character and
rescion. Video Switchers, Colour, Stew Scan TV,
Teletype, and Microwava), the scope of this new
work is more specialised. Certainly, beginners in
ATV would be well advised to first start with the
Amassur Television Handbook. But, if you are looking for a new challenge in TV. 'MICRO AND TELEVISION PROJECTS'

could well be the stimulus you are looking for the booket contains 88 pages in total,

ne cooket contains 85 pages in total, 44 pages of text, eight block diagrams, 27 circuits, 10 PCB top view overlay diagrams, five illustrations and nine software listings, and is falld out in the competent manner in A5 size pages familiar to readers of CQ-TV. INSUIDERS OF CULT V.

INICRO AND TELEVISION PROJECTS is written by Trev
Brown GSCJB and published by the British Amels
Trievision Cup. It will shortly be svaliable from Division



USER TRAINING MANUAL

Len Poynter VK3BYE 14 Eather Court, Fawkner, Vic. 3060 are some of the topics covered in this book.

There are 125 pages with plenty of diagrams, Glossary, etc. This book is highly recommended to those who

wish to know more about propagation, and is available for \$12 posted from IPS, PO Box 702. Darlinghurst, NSW. 2010. with its ample growth of ti-tree and scrub, some

ERITH ISLAND Ken Gott VK3AJU, plans to operate again from

Erith Island, located in the Kent Group in Bass Strait, from around 22nd December, for one month Dates are approximate as sailing conditions may delay the arrival on Erith, which is uninhabited. Equipment will be an IC745 and G5RV, at 30 feet (9m). Ken operated from Erith, as VK3KGX/7, during

Absorption of HF Radio Waves, lonospheric Vari-

ations, Solar Cycle Variations; Oblique Propagations: Predictions; Sun-Earth Environment, So-

ar Activity, Effects of Solar Activity, IPS Services

the Christmas period of 1982-83, and again in 1983-84, as VK3AJILI7 Operation then was mainly on 3.5MHz at night, with occasional visits to 7 and

The group that ventures to Erith each year has some 20 years continuity, and most members have been aquaintances even longer, The island is not known for its great DX location, but the island allows plenty of time for operating, and, opportunity for experimentation with wire antennas. DEFINITIONS

AUTOMATIC LEVEL CONTROL a magazine

used to prop up the front of the rig so you can read the dial more readily.

ANTI-TRIP DEVICE . . . a really short microphone RESTING CURRENT what you get when you touch the HT terminal on your linear MODULATION ENVELOPE . the one your

lephone bill comes in ENVELOPE DETECTOR . . a letter box
PRODUCT DETECTOR the name of the name plate on the

. noise of a fuse blowing From BARG News, August 1985.

AMATEUR RADIO, December 1985-Page 57



VK2 MINI BULLETIN

Tim Mills VK2ZTM VK2 MINI BULLETIN EDITOR PO Box 1066, Parramatta, NSW 2150





From Int! Maurine Lavery (Administration Secretary), Peter Y4229 (President Y42), Royal VAZDE (President Y42), Royal VAZDE (President Y42), Royal VAZDE (Peter Y42), Royal was won by VK2 in 1984.

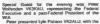


Lyle VK2ALU, receives the Ron Wilkinson Achievement Award from Peter VK3KAU, at VK2 Anniversary Dinner, October 1985

Peter VK3KAU, presents Tim VK2ZTM, with a 75th Anniversary Medallion.







1984 Ron Wilkinson Achievement Award Certifi-On Saturday, 12th October 1985, members and wives attended the Division's Anniversary Dinner. cate, which Lyle won for his dedication to the Moonbounce Projects.



VK2 ANNIVERSARY DINNER

Page 58-AMATEUR RADIO, December 1985





Steve VK2PS



Roger VK2ZIG, Master of Ceremonies for



Peter VK3KAU and Wally VK2DEW





The VK2 Anniversary Dinner was at time for many get-togethers. From left: Stephen VK2TQ, Roger VK2TB, and Wally VK2DEW.

It had been some years since a dinner had been held by the Division. The 70 people who attended the dinner all agreed it was an excellent night. Perhaps dinners of this type can again become a regular feature of the Divisions activities. ANNUAL GENERAL MEETING

Members are reminded that the Division's administrative year ends on 31st December. This is the ose off the books, submit reports, etc for the AGM, which will be held on the Saturday after Easter

HOME-BREW CONTEST Have you something to enter in the Home-Brew Consest? Entry forms are available from the Divisional Office, which is open between 11am and 2pm weekdays, and Wednesday evenings from 7 to 5pm. Ring (02) 689 2417 or write to the post box address shown at the top of this column. Entries will close at the end of February 1986.

HOLIDAYS The VK2 Divisional Broadcasts will cease over the Christmas holiday period, and will resume in mid-January. The last broadcast will be on 22nd

PLEASE WRITE! Have you been using the 80 metra transmissions of VK2RCW. on 3.669MHz? If so, would you

please write your commonts and send them to HADARC, PO Box 362, Hornsby, NSW 2077 The six month trial period on HF is nearing the review time - see report in September's AR.

Previous mention has been made in these notes that the two metre band, and the repeaters in the top megahertz have been having a problem with the adjacent pager band. An extensive discussion paper has been prepared and was ready for distribution in October, when there were delays in the postal service.

It is hoped that all repeater groups within this State, as well as all other Divisions will have received their copy by now, and your replies to the enclosed questionnaires are starting to be re turned. We would like to have these at hand before the end of the year. A few copies of the paper are available if any member would like to contact the Divisional Office. An article on the problems is being prepared for inclusion in AR next year.



The RD Trophy and the 75th Anniversary Cup together in VK2. It is hoped the awards will meet again in VK2.

REPEATERS While on repeater matters - interest has devel-

oped in the Sydney region during this year to establish ATV repeaters. The terrain of the region makes its difficult to provide a single site coverage This means that more than one system is likely to develop. To date, the Sydney ATV Group have submitted an application to establish an outlet in the lower Blue Mountains, Gladesville ARC, who have been conducting a mplex transmissions on Wednesday evenings, have relocated their site to the upper North Shore They have advised that they wish to develop the

facility into a repeater. There are also those who wish to use the allocation in a simplex capacity. So that all requirements can be looked at, would any other group, or person, with an interest to develop a repeater, or conduct simplex operation, using he 50cm-channel 34 segment, please advise the Divisional Office, in writing.

A system will have to be devised of time-

sharing, or similar, for all interests to share the allocation. The Newcastle region has an ATV repeater to the operational stage, but their operation is untikely to be affected by the requirements of the Sydney region

BACKET BADIO

Packet Radio has continued to develop Interest has been to develop repeating facilities, which provide range extending The Oxley Region ARC have advised that they will be adding packet, as well as UHF voice repeaters to their existing VK2RPM system.

ERRATA FOR CONFERENCE OF CLUBS The Conference of Clubs was not held last month. as announced in November AR It will, instead, be held on 8th December 1985, same location .

Wastlokes ARC THE END

It is almost to the end of the Institute's cel-ebrations of its 75th year. The VK2 Division will not conclude its period until March 1986. Material is still being collected for the "Time Capsule"— see March 1985 AR. On behalf of the Council, and all its Office Bearers, may I wish one and all the Season's

Greetings, and the very best for 1986 de Tim VK2ZTM



LANGURANTON

Ken Ray PO Box 710. Woden, ACT 2606 VK1 DIVISION

MEETINGS FOR 1986 There will be no VK1 Divisiona meeting in December due to the Christmas holidays. The next meet no w it be on the 20th January 1986, and the 20th January 1986, and the 20th January 1986, and the Solf n Centre Civic Doors will open around 745pm, for the bookstell and QSL bureau, with the meet no commencing at 8pm. At the time of writing, the topic had not yet been confirmed, but w most probably be a video-tape evening

The Annual General Meeting for 1986, will be he'd on Monday, 24th February, at the Griffin Centre starting at 8pm. One of the functions of the AGM is to elect office bearers for the 1986 year All members of the VK1 Division are eligible to strand for election to any committee position. and it spoears that a number of long serving members may not stand for re-election. member interested in standing for a committee position should contact the Public Officer, Alan Hawes VK1KAs, for nomination forms and further details. Serving on the committee can be very satisfying, and need not be an onercus task if all pull their weight. This could be your chance to put something back into our hobby of amateur radio. and can be a very enjoyable, and rewarding experience.

JOTA 1986 The VK1 Division operated three stations on the

JOTA weekend, from all reports with great succass. White propagation could have been better all statenes renorted reasonable interest from the Scout and Guide Movements. Thanks must on to Alan VK1KAL, Karl VK1KCM, and Adrian VK1NYA who co-ordinated activities at the three stations and to the many other amaleurs who provided heir time and equipment for the weekend

One of the stations, VK1BP, operated from Camo Cottermouth, where almost 400 Scouts participated. Most Australian States, and New Zealand were contacted, and all those on the camp had a great time. A more detailed report on the VK1 activities in JOTA should be forthcoming

That is all from me for this year Thanks to all those who provided information to me for inclusion in the column, and for those taking holidays over the next few months, have a good time, take care. and we will see you pext year. I take pleasure in wishing all members, a very Merry Christmas, and prosperous New Year, on behalf of the VK1

ENVEY HIPHISHELENNERS



Jennifer Warrington, VK5ANW 59 Albert Street, Clarence Gardens, SA 5039

Have you ever had one of those days when you felt you should go back to bed, and start again tomorrow? We I, I've had a whole month like that! Last month, in this column, I gave the Picnic a ig "plug" I then received a telephone call to say that we would not be able to hold it at Bridgewater Oval in November, as the Oval is being dug up for drainage and sprinkler systems installation. Of

course, by this time, everything else had been booked out. It has now been decided to postpone the Picnic until the first or second week in March And, if that wasn't enough I was informed that the RSL Hatl in which we hold our Christmas

Soc al, was having some urgent repair work done. and may not be finished in time to hold the December meeting I am expecting news on this one at any minute (or hoping, at least) The third major outside venue is the Parnanga

Camp-site for our Clubs' Convention — what camb go wrong with that? We'll they had us double-hooked with another group for the week-end of the 11-13th April 1986, and we are still trying to sort out who will go where OUTSIDE BROADCAST

There were some brighter spots in the month, though Bob VKSADR, restored my faith in human neture when he volunteered to set up a station at Hectorville Primary School for the r Communica tions Day. Bob volunteered within haif an hour of my request on the Broadcast. We shared the day with SEBI, the Commercia, Badio Station, who had their Outside Broadcast van set up in the p-avground

LIBRARY SHACK

When I arrived at midday, I found the school looking more like an amateur's shack. Peter Koen had done his usual excellent job with various displays around the walls Bill Gill VK5\VM, whose son was on the cover of October's AR, had lent his display of old valves, etc. Lindsay VK5GZ was fascinating the children with his CW contacts, and Bob VK5ADR was kept very busy typing the children's names into a teletype machine, which in turn, relayed the information to a second machine, which produced a punched tape. Each child got his or her name. nd relevant piece of ounched tape to take home During the lunch break, we managed to keep a

re-arranged sched between one of the teach at the school and her brother, Kevin P29KM The teacher was delighted to be able to speak with him, and is now considering sitting for a licence herself, in due course. Colin Ralph VK5KCR, was officially with SEBI, but came in to have a chat with us, and then took me back to have a look at their gear and meet the crew

Thanks must go to Bob VKSADR, and the others for a most successful day

DIARY DATES (what optimism!)

Tuesday, 10th December — Christmas Social with speaker Geoff Taylor VKSTY Geoff will speak on the First Burra to Broken Hill Wheelbarrow Race. Bring your YL/XYL/OM and a plate of supper

PLANNING FOR AUSSAT AUSSAT's space and communications man-

ager, Dr Wayne Nowland has stated that, due to rapid technological development designing the next generation of satellites, it is necessary to estimate communication needs of the 1990s. Plans are to be completed by 1987 and the

new AUSSATs launched in 1992. To be taken into account, was the expected increased demands for personal communications, using small earth stations. Satellite technology will be the catalyst for

inventiveness and entrepreneurial activity to develop the necessary new person- to-person SOUNCES

WHERE WE STAND By now most members will have received their

annual WIA membership renewal notice. The fees have been frozen at last years level, with the exception of the Student Grade, which has been reduced to \$15.

Increased membership in the Division has been a factor enabling the fees to be kept to a minimum. Another year of membership growth has been experienced in VK3 with about 70 percent of active radio ameteurs in Victoria being WIA

A brief explanation, may be pertinent, about the 40 oeccent decrease in the Student Grade, This step has been taken, as part of a Youth Development Programme, to encourage more youngsters into the hooby Your Division has three main sources of Income

- the Divisional portion of subscriptions, sale of disposa's equipment, and book sales. Following is a brief resume of the last four years operation

The Division had a very difficult period from the late 1970s to 1982. Many serious problems had to be faced by Council, which had to make tough decisions to overcome the difficulties

decisions to overcome the difficulties. That crisis period is now behind us, but it is worth looking at the Council's achievements. In 1992, it paid off the Victorian Divisional Head-quarters mortgage of \$12.727 (current market value of the building is \$120.00) which gar financial stability and enabled Council to embark. on other projects

During the four years, 1982-85, the VHF/UHF repeaters have been substantially upgraded, and many new ones installed. The small group of radio amateurs who install, and service the repeaters desarve the cradit for the standard of repeaters now available for general use, and in times of emergency However many radio amateurs, particularly

non-members, take repeaters for granted, do not contribute to them, and are among the first to complain if a repeater is off the sir. in the past four years, the VK3 Counci, has used \$28,000 of members funds for repeater installations and repairs. There is site costs,

insurance, power, and licence fees to be paid each year on repenters The all-up capital worth of repeaters in Victoria would be in excess of \$33 000 — this asset

belongs to you, the WIA member Other major expenses incurred during the past four years by the Div sion include:

Office Postage \$4,000 Rates \$3 626 OSL Bureau \$9 342 Office Typist

Without the efforts of a small group of members responsible for the revenue through disposals aquipment, and book sales, the Division would not have had \$15,000 to spend. There efforts are making cheap services available to members, and at the same time contribute to the Division's financial well-barno The VK3 Divisional Council looks forward, with

confidence. that the number of members will continue to grow. After all, this Division is recog-nised as having the best range of membership services, including a free QSL Bureau for members At 75 cants per weak (even less for pen-sioners, students, and family members). WIA membership is value for money in terms of service provided, and as an insurance policy for your



OVICA WITA NOTES

Bud Pounsett VK4QY Box 638, GPO, Brisbane, Old 4001

Nearly every Sunday, the Divisional President, John Aarsse VK4QA speaks to members on the weekly broadcast from VK4WIA Here is one such

script from September imunications is the key to our hobby, so it is said by many. But do we communicate effectively?

Looking around, one would say, communication skills are the worst in any communication organis-ation, be it in the hobby field or professionally. Too often, many details are taken for granted

Council, when it has made an announcement, assumes that members will remember it forever members assume that a mere mention of a problem will automatically be followed up by a

Unfortunately, this is not the case and, while attending the Townsville Amateur Radio Club Convention, this was brought home to me in no uncertain way. And I am thankful that it was brought to my attention, and that is part of our nunication exercise

So, here is a summary of a reasonable com-munications solution, applicable to our Division. If have serious problems, say with non-receipt of AR, or cannot find out how to form a local radio club, or your club wants to put up a repeater, contact, in writing, the WIA O Secretary. He/she will direct it to the right person, who will then answer you direct in this manner, you have a written record and you are able to study your question, and the answer you receive, at your leasure. But, as all of our Council Members are wouthers, and thus have certain family commitments, you will not always receive an answer by return mail. If you wish to have such a service, even within the WIA Q, the expression "the user pays" applies. In other words, the fees will have to rise to allow your Division to employ staff. This other method will cost you the price of a postage stamp Another method is to use the telephone. This is

not siways recommended, as the person may not be at home and. If one lives outside the particular call-area, it may become an expensive exercise The last method is more in line with our hobby use the airways it may not be a private line, but there may be others who always wanted to ask the same question, but were afraid to do so

As far as this Division is concerned, the As far as this Division is concerned, the following ON-AP possibilities are as follows. Tuesday evenings, from 0930UTC on approximately 3.605MHz, VK4AWI and the Cuesniand Radio Club Net it is primarily intended as a contact line between Council and representatives of the VK4 Radio Clubs. If time perm ta individuals can check in, but for them there is another nat, believe it or not. By the way,



On the eve of the Queensland Radio Club Conference, 1985, at the North Brisbane Radio Club, three presidents were together, representing the WIA structure. From left: Bill Donovan VK4AKV, North Brisbane Radio Club President, David Wardlaw VK3ADW, Federal WIA President, and John Aarsse VK4QA, Queensland Divisional President.

VK4AWI is presently operated by Council Member,

Thursday 0930UTC on Thursday evenings, from 0930UTC or approximately 3.605MHz, the Queensland Net Unfortunately, a tot of operators think that this not is there solely to amass Cities, Towns, and Shires is there solely to amass Cities, for the Queensland Award. This is not so. Its primary aim is to be a contact point between Council and members and non-members alike, on

a regular basis. In the past, many problems have been solved, either on the spot, or after one week Only one or two tricky questions required a longer waiting time as it involved chacking with, either DOC or Federal Executive After some time of operations, there were no

questions forthcoming, and it became a meeting point for those wishing to contact the many Shires, Cities, and Towns, in Queensland. But please remember, the purpose of the Queensland Net is still primarily a contact net, and those with questions to ask will have priority Often, if an important item is available, this will often be ennounced at the start and repeated later in the net After all, the Queensland Net was the first to officially announce the extension of the 80 metre ment for Novice operators, some years ago Further, since this is a regular net, any portable mobile, or fixed station should know it is possible to squeeze a possible emergency call through at this point in time

The net controllers are John VK4QA, Max VK4BMW, or Val VK4VR. Of the three, John and Val are Council Members. If Max has control, a Council Member is usually on the side listening. If there are no questions, the Queensland Net will happily chase all those elusive Shires, elcetera. By the way, 3.605MHz is the WICEN frequency in usensland for state use

The final method of getting a message thro with some reservations, is during the Call-Back after the News Broadcasts This is not recommended, as it could be time

consuming, and many would like to get on with their Sunday chores. Also, it could put extra their Sunday chores. Also, it could put extra pressure on the Call-Back controllers if they are not Council Members. They may lorget the message, or cannot get in contact with a Council Member in time for the next Call-Back So, unless you know that the Call-Back-Controller is a member of Council, do not use the Call-Back to eak questions or pul lorward suggestions, it will not always reach Council, the

very people who you want to consider your proposals So, in conclusion, a recap of methods of unication between members and council

Do it in writing to GPO Box 638, Brisbane. Old. 4001. If you know to what section it should be directed, put that on the envelope, you may save valuable time.

Use the airwayes. Representative each Tuesday at 0930 UTC. on around 3.605MHz, with VK4AWI as controlled As a member, or non-member, use the Queensland Net, each Thursday, at 0930UTC, on or around 3.605MHz, with either VK4QA,

VK4VR or VK4BMW as net controllers. During call backs, after the news, but this method is not guaranteed to give immediate results, unless a Councillor on the Net is willing to offer some of his/her Sunday time.

I hope this has given you some insight on a possible effective communications system within our hobby in VK4. This information may be repeated from time to time to alert new licensees of the recommended types of communications with their Division

LOSS COLUMN COLU

SEASONS GREETINGS from VK4 **在我们的公司各种的人的公司的公司的公司**

A Call to all Holders of a

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New you have joined the ranks of amoteur radio, why not extend your activities?

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DSISMO 215D or CW Rite Direct Conversion Tharisceiver, No cade or knobs, but includes all comprehents to make a transceiver Rew ands XX 855.00 plus 82.00 page.
ALDIDI ACTUSE FILTER Seven selectivity positions. Really sorts ALDIDA ACTILE FILTER Seem selectors; positions. Roally north con-pression of the property of

huit \$85.00 + \$4.00 ptip LAD PRECE ENCY COUNTER This is suitable for us

Programsy Display in a receiver as IF offsets are builton, so 485kHz 10.786Hz size Ideal for use with our DSBISO and will, in the mode give a readwal to 100Hz. Altogether there are 26 radio IF offsets selectable. Phane for more information, Bulli \$85.00 ±. \$2.00 pkp n.SPECTAL USBNO + ACTIVE FILTER + LCD DISPLAY - Norma

\$203.00 buy all three and sare \$48.00 Kits \$155.00 plus \$2.50 PROPERTY OF THE PROPERTY OF TH of 28-30MHz: We are giving their away. Kill 825:00 plus \$1.50 pdg. SPECIAL — If you have one of our DSB90s and would like a digital displacing AH for an extra special price.

5 AMBLECOTE CRESCENT, MULGRAVE, VIC. 3170 Tel: (03) 795 8717 AH

Photography courtesy Ken McLachian VK3AH







OVIER TO YOUR

Any opinion expressed under this headless the individual opinion of the writer a see not necessarily coincide with that the publisher

THE ROSS HULL CONTEST It is not so distant past when this was a marveilous

contest when every VHFer worth his sair, was out there changing reports.

Since then, the so called 'Big Guns' (many of which I would consider triends), have cramped the style of the smaller operators. It seems we now may need modification to the contest layout Where-as, before if you worked three or more bands, your points score from multipliers soon soared pretty high

Consideration needs to be given to a possible single band' section of the contest, where an amateur can select a favourite band, (in my case six metres) or the band on which the operator is hast equipped to compete I have discussed this with many fellow VHFers

throughout Austral a and feel that this may give the Ross Hull a new breath of connechers I realise this may complicate a once simple, but dying contest. So maybe someone will win the 10GHz section with a single contact, but at least someone was active, which is the whole essence of the What do others think?

See you on s.x metres during the contest. Peter Sumner VK871 X

Alice Springs, NT, 5570.

PHONE PATCH

Telecom Austra ia would appear most unsympathetic to Australia's most diplomatic, law-abiding. and best international ambassadors ... a group which has neither the political power nor the finance with which to protect itself or its interests. I refer to the Ameteur Radio Service Telecom's answer to a request, from the Ame-

Telecom's answer to a request, more are arra-teur Service, for phone patch privileges is con-tained in their document, "Interconnection of Mobile Amateur and Critizen Band Radio Com-munications" with the Public Switched Belephone Network, Policy, and Conditions, issue 2. June 1985. This document is so restrictive that it makes the use of the telephone system, by the Amateur Radio Service, unbelievably difficult. Also, Telecom went us to pay a surcharge (in addition to the regular te-ephone charges) for no more facilities than normal use of the telephone. The Department of Communications makes no extra charge for third party privileges
The Amateur Service cannot by DOC regu-

lation, make any form of profit whatsoever, and cannot recover any costs - not even the standard telephone charges Please help us to encourage Telecom to modify

their unnecessary rules and regulations, and remove their demands for unwarranted surcharges on the Amateur Radio Service Yours sincerely.

Tony Tregale VK3QQ 38 Wattle Drive, Watsonia, Vic. 3087

WHERE ARE THE YOUNG ONES?

With the assistance of Amateur Radio, I would like to call the attention of the younger members of the fraternity As part of a small group of young, radio orientated people, I would like to hear from any others in the same position. My primary aim is to come up on air in a net to chat on our own wave

length (so to speak) am aware of the presence of other young amateurs, but unfortunately cannot seem to calciup with them 1 also realise that there are some

school groups around. So, how about a national, or perhaps international 'under 18s/21s' net. If things work here in Australia, I will send similar letters to overseas

If you are interested, or know of anyone who

may be interested in the idea, please contact me.

yours sincerely. Mick Morgan-Hobbs VKSEU. 7 Eltham Place.

Kingsley, WA. 6026

75th ANNIVERSARY

Greetings and congratulations on the 75th Anniversary of the Institute. May there be many more with the passing years. The kind thought of the Anniversary Gift is much appreciated, and rest assured much more

activity will be heard on the WARC bands in the frehunk Best regards, Noef Lewton VK4NI

50 High Street North Mackey, Old. 4740

WARC BANDS

Many thanks for the WIA gift pack, presented as result of me being heard on the WARC bends -18 and 24MHz. I lesi that a resume of these bands may enlighten all on the happenings on these two

I commenced operation in these bands on 2nd January 1983, and on 24MHz have worked GW. G Germany and VKs 2, 3, 4, 5, 6, and 7, I am also active on 10 IMHz. On 18MHz, I have worked 20 countries includ-

Ing: G, GW, GM, I, C21, F, VU, A35, LA3, HB9, FA7, VP9, YU, OZ, OE, T30, ZL, many stations in Germany, ZS, and LU1/MM in the Indian Ocean. All VK States have been worked except 1, 8, 9, and 0. For about the past 2 years, I have had th

advantage of a home brew programmable CW CO Caller fused on eight HF bands), on 18MHz. The Caller keys my transceiver as a 100W manned begon, while I am busy writing out QSL cards. filing QSOs into a filing card system, or building nother CQ Caller It is sed to say, but 18MHz has also gone down.

with DX contacts being very rare. But, as some say, this band will be a really good one, when pagation improves.

Lindsay Collins VK5QZ VK5 Intruder Watch Co-ordinator 12 Park Avenu Rosalyn Park, SA, 5072

Lindsay, you may care to write-up the construction of your Caller for publication in AR — Ed. M. NOW 19 TOUGH

Congratulations on an excellent magazine, and I expecially like the Pounding Brass column. The

magazine is my only contact with the WIA, so really appreciate it a lot. Would any readers be interested in an interface

to drive the rig with CW taped on a recorder? I am building my third prototype now

Gil Brownrigg VK3CGG, 7 Church Street, Bright, Vic. 3741.

Are there any members interested? If so, drop Git a line and encourage him along the author's path - Ed

OBITUARY TO THE VHF/UHF/SHF AMA-TELIE BANDS I read (with a feeling of sorrow at having lost a

good friend) the paragraph in the October 1965 issue of AR, entitled 'A Woodpecker on 427MHz' (VHF UHF - an expending world). What has been forecast by myself, and others that watch the amateur scene overseas, has come to pass. The commercials have commenced to take over ama teur frequencies that offer great potential for the I can now throw away the equipment I have spent so much time and money building, and improving. Nobody in their right mind would want d now

Warnings that at all costs exclusive segments must be secured in all UHF and SHF amateur hands have fallen on deef ears, and now it is too happen in Australia', aided by a lack of support by some groups has lost us our VHF, UHF and SHF bande Some of us will mourn their loss

G Wiseman VK5EU, 19 Washington Street, Hilton, SA. 5033.



SCOUTING This photograph was taxen in 1922, a year before (

came to Australia. I am now 81 years of age, so I would have been about 18 at the time. I was in the Sixth West Hampstead Troop, and met Sir Baden-Powell many times, also King George IV and King Edward VIII, as they used to

visit our camps This was the time also, when I first became terested in radio, as I learned Semaphora and Morse signals

I can still remember the first crystal and valve sets that I built with Mullard valves and honeycomb coils Yours sincerely, Albert Shire VK3OZ.

3a Eighth Stree Alldura, Vic. 3600

Help Save Amateur Radio Language
The Macquarie Dictionary defines the word
LANGUAGE as "Communication by voice in the distinctively human manner, using arbitrary audi-

tory symbols in conventional ways with conventional meanings Amateur radio has a long established language of its own which adds to the hobby's character and uniqueness. But the language has, unfortunately

been overlooked by some newcomers, particularly in the fact decade A few old hands are also to blame for not using the language correctly, or failing to encourage

others to speak it as it should be spoken The vocabulary of some radio amateurs in-cludes phrases like 'come-back'. Everytime this is used on a repeater I, and others mumble to Another phrase gaining popularity is I've got to

ourselves 'come-back from where'

Page 62-AMATEUR RADIO, December 1985

Silent Keys

It is with deep regret we record the passing of -

MR WILLIAM N BUILLIVANT VK2RC

10th September 1985

)bituaries BILL BULLIVANT VK2RC

It is with deep regret I advise the passin of Bill Bullivant VK2BC, on 10th Septembe 1985, following a short illness. Bill, who was in his 27th year, becam

bill, who was in his 7/m year, became interested in amateur radio during his early teens, at Albury, and obtained his licence in 1925 under the call sign VKZWB. Upon taking up residence in Sydney, Bill obtained his First Class Certificate and, at

obtained his First Class Certificate and, at one stage, was stationed at Rose Bay as a base station operator in connection with the Flying Boot Service. At the demise of the Aeradio Service he was transferred to the Sydney GPO, as a telegraphical and soon gained promotion to the position of Traffic Offices. Prior to Bill's retirement from the work-

Over to you continued

ce he held the position of Senior Traffic

Officer (OIC) Telegraphs.
When Bill renewed his licence, he was allocated VK2BC, and became a keen DX fen, having contacted some 300 countries. tronics generally, he had other great hob-bles including clocks, tage recorders, and hotography. Furthermore, he was a tai-nted musician, not only on the saxophone. but also other various instruments. One of my happy memories of Bill was his rendition of the 'Happy Birthday' tune, played on his

Over the past nine years Bill conducted a net on 40 metres telephony which included some fifteen smateurs. Being such a personality, Bill will be

reatly missed by his friends and fellow mateurs, especially for his jovial and enerous nature. We were the richer for ing him

To his wife Joan, and family, deepest aympathy Lauria Sinclair VK2884

HAROLD GEORGE SELMAN VK3CM/ex 3GN

It is a sad task to report the sudden death of Harold VK3CM on 18th September 1985. Born in 1907, Harold could have been classed as an 'old-timer' in amateur radio, however his enthusiasm and active nature gave no Impression of his senior years. He was a Life Member of the Geolong Amateur Radio Club, and served as tressurer for a number of recent years in succession. His kindly nature, and sense of humour, were respected, and enjoyed by all club members, young and old

alike. Over the years, Harold developed a special rapport with the younger generation of radio enthusiasts by encouraging, and assisting them, to construct their equipment. His generosity benefited many with those 'hard to get' components, of which he seemed to have a ready supply from his 'junk collection'.

Harold was well known on the HF bands, in particular in the CW segments. His true love was for the 160 metre band, on which he had confirmed contacts with approximately 30 confirmed contacts with approximately 30 countries. With modest transmitting equipment, and a highly efficient long wire antenna system, he achieved remarkable results; his name often appearing prominently in contest result listings. These results were achieved with a minimum of fuse, but with quiet dedication and enthusiasm.
Harold had an involvement with radio

Harold had an Involvement with ratio communications from this very beginnings. He operated under the VK3GN call algn prior to world War Two, served in New Guines during the War as an instructor and technicien, and then continued his Interest in smaleur radio, post war, under the call algn VK3CM.

Harold was well-known for his enthusiasm and setive participation outside of amateur radio circles, also, He had an intense interest in notor blke racing and participated in Sporting lotor Bike Club acremble and road racing

Motor Bike Club scremble and road racing weretz, right up to the age of 84 years. Heroid was known to all by his gentle nature, which will be aduly missed by all and deepest sympathy is extended to his immediate family, draeme, Pitta, Max, Mervin, Stanley, and Marlene, and to his grand, and gread-grand children.

get out of here' when in fact what is meant is 'I want to go clear'. I'm sure if you think about it you will have heard other examples of non-amateur radio phrases on air. Perhaps like "What is your handle, OM?' which has been replaced by some people who say 'What's the name that way The C-code is also being abused. For example "I'm going GRT for a second" when in fact the radio amateur plans to go GRX. What is your OTH", never "what's your 10-20 there." But listen long enough and you will hear the 10-code on the

emateur bands It is enough to make any 'old man' or 'YL' take the top off a 'gaseous 807'.
73. never 73s, de VK3PC. Jim Linton VK3PC, 4 Ansett Crescent

Forest Hill, Vic. 3131.



FAMOUS NAMES

Many well-known people enjoy the hobby of amateur radio, and It is true to say that you never know who you may talk to. Following is a short list of some, can any members add to this list? of some, can any members add to this list? King Hussein of Jordan JY1 and EPIJY; Arthur Godfrey K4LIB (SK), American entertainer; Howard Hughes 9CY (SK), had this call sign in the 1920s; Owen Garriott WSLFL, first amateur-in-space; son of the late Shah of Iran EPIMP; Anastacio Somoza YN1AS (SKI Nicaraguan dictator; Barry Goldwater K7UGA, US Senator: Sir Alan Fairhall VK2KB. former Austrafian Minister for Defence; Percy Sara VK2QV (SK), father of the famous "Sara Quads" who were born in the 1950s; Stu Gilliam WD6FBU, US actor and omedian; Donny Osmond KA7EVD, singer of the Osmond family; Jean Shapherd KZORS, US author and humourist; Marlen Brando FOOGJ, US author and numourist; marriori brando FOUGA, GG actor; Rajiv Gandhi VU2RG, Prime Minister of India, and his XYL Sonia VU2SON, Bernie Abramson W6PJX, a director of photography in Hollywood. (Bernie worked on some of the late John Wayne's films, so there is no doubt he extolled the virtues of amateur radio to Mr Wayne, off camera.

THE BENIAMIN FRANKLIN METHOD

Lindsay Lawless VK3ANJ Box 112, Lakes Entrance, Vic. 3909

Nobby was a natural born experimenter: nothing deterred him from trying new ideas: if his theoretical knowledge discounted the chances of success he would proceed regardless. "The theory is probably right" he would say "but it will do no harm to prove The latest fixation was implanted by someone on air saving that the secret of good aerial construction was to get as much wire into the air as possible Nobby's aerial farm therefore encompassed an area bounded by the palm tree near the wash-house (laundry to city folk), the old gum tree at the dairy another at the creek and returning to the wash-house palm via the defunct windmill near the stables. In all the length of wire was about two wavelengths a 80 metres. Results were somewhat natchy and according to the experts on the zone net a vertical would produce better results. Nobby admitted that it would be beyond even his considerable skills to get the same amount of wire into a vertical but it would be worth trying to see how much he could raise with a balloon or a kite or several of these A kite would be an interesting experiment. After

all many top scientific people and other experimenters had contributed beneficial developments to engineering as a result of messing about with kites. "It would amuse the kids too" said the XYL "and you have always been interested in aviation

Many designs have been tried, kilometres of balins twine expended, all the magnies have moved to other territories free of terrifying tethered hawks and the kids have retrieved their BMX bikes from the temporary storage in the barn. Not a metre of wire has been lifted vertically. "I think balloons will be the shot" says Nobby

Balloons are easy to get but they must be filled with Hydrogen or hot air to get them off the ground and keep them there. Hot air is out because it has to be kept hot. Hydrogen has to be the answer. With the problem thought this far Nobby gave it a rest awaiting rspiration or technical advice from the experts or

the net. He didn't know of a source of supply of Hydrogen which would cost little or nothing The final solution was almost a final for Nobby and a severe shock to other members of the Nobby household. The blue heeler bitch refuses to come out of her kennel except for meals, the bay mare bolts to the far end of the horse paddock on hearing any unusual sound and the XYL is considering a long holiday at "mums". Hydrogen you see is a by-product of hattery charging: a suitable arrangement of inverted plastic funnels and plastic tubing will direct this byproduct into an inverted ieny can

To test this apparatus a 24 hour charging of the tractor battery was arranged and the result taken to the middle of the cowyard and a lighted match applied to the mouth of the jerry can. The bay mare in spite of being harnessed to the Furphy leant the fence into the pig yard feaving the Furphy behind. The heeler which had been sniffing around the jerry can fled veloing, cleared the creek in one bound and disappeared into the scrub. Nobby escaped unburt and except for a sort of chirpy CW affecting his hearing, is almost ready for the next experiment. He optimistically predicts a deep fade of the chirpy CW in only a few days. The jerry can will remain at the top of the dead gum in the pig yard until the tree is needed for fuel for the kitchen stove.

There is a sequel to every notable event. The XYL did take that holiday and returned with a gift for Nobby from "mum"; one Cimbidium prchid in a pot and a book entitled "How to Raise Orchids for Pleasure and Profit". Nobby thinks this is a great idea but "I will need a Commodore 64 or similar to record my orchid growing experiments" "Yes" said the XYL to herself "and for AMTOR experiments I suppose"

> Unfortunately, due to an industrial ute, there are no IONOSPHERIC PREDICTIONS this month.

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SOLAR GEOPHYSICAL SUMMARY: AUGUST 1985

SOLAR

Solar activity was very low during August, with no energetic flares being observed. The active region which raised the 10cm flux levels in recent months has now decayed. The remnants of this region produced the slight rise in the flux levels early in Even with this rise, the monthly averaged flux

value was the lowest since the last solar minimum

Tom daily readings were 1,2=78, 3,4=77, 5,8=76, 7=77, 8=76, 9= 73, 10=71, 11=67, 12=68, 13=57, 14=68, 15=67, 16=67, 17=68, 16=67, 19=68, 20,21=69, 22-26=71, 27-25=72, 30,31=73. Average 71.8 and the Sunspot monthly svarage was 10.4. Sunspot yearly average

GEOMAGNETIC

August was a disturbed month, in general. There was an extended period of mildly disturbed conditions from the 18th through to the 30th. The most disturbed days were the 13th A=41 and the 31et A = 32

SISI A= 32.

18 August ... Field unsettled to active A= 17

19-15th August ... Field became disturbed after
1900 UTC on 12th and was at major storm levels
until around 1200 UTC on 13th. it was disturbed
again between 0500 and 1000 UTC on 16th, and
between 0500 and 1400 UTC on 15th. A = 20.41.22.16

18-19th August ... Field was at active levels between 2200 UTC on 18th and 0800 UTC on 10th A - 14 16 TMM. A=14,16
22nd-23rd August . . . Field was at active levels
with periods of minor storm levels. A-18,18
25-25th August . . . Field was at unsetted levels
with periods of active conditions. A=18,17 29th August ... Field at active levels between 0600-1900 UTC: A=16

31st August ... Field at storm levels between 0900 and 1900 UTC. A = 32 Quiet days . . . 5 A=4; 6=3; 7=4; 11=4

From data supplied by Department of Science, IPS Radio and Space Services.



DEADLINE All copy for inclusion in the February 1986 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday, 2nd January 1986.

RAWANDS

PLEASE NOTE: If you are advertising items FOR SALE and WANTED please write each on separate sheets. including ALL details, eg Neme, Address, on both

Please write copy for your Hamad as clearly as possible, preferably typed Please insert SYD code with phone numbers wh

you advertise.

• Eight lines free to all WIA members. Sil per 10 words. imum for non-members

 Copy in typescript please or in block letters doul spaced to PO Box 300. Caulfield South 3182. Repeats may be charged at full rates.

 QTHR means address is correct as set out in the WIA current Call Book Ordinary Hamads submitted from members who a deemed to be in the general electronics retail and wholesale distributive trades should be cartified as

referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follow The rate is \$22.50 for four lines, plus \$2 per line for part thereof) minimum charge \$22.50 pre-payable. Copy is

required by the deadline as stated below indexes on nage 1

●TRADE ADS●

AMIDON FERROMAGNETIC CONES: Large cauge for all receiver & Ennamining Applications. See data & prior for word bis22deam SASE or Et al US BOOTORTS, Bost 157, Mortalde, NSW. 2223. (No ecquisics at office 11 Maches Soret, Caldey), Agencias at Gord Wood Electrosics, Rorelle, NSW. Texott Electrosics, Copylon. Vic. Willia Ending Co., Porch, W.A. Bermanic Component, Fidewick, Flux. ACT.

WANTED - NSW **#**

NUMBER 19 ARMY SEX. CW CABLE, POWER SUPPLY, CONTROL BOXES, ETC. For remanation of Bren gun carrier, Details to VEZANVR, 20 Stanley Street, St Ives, NSW, 2075. Ph/80244 1952.

■ WANTED - VIC =

ANTENNA TUNER: YAESU PC-102 or similer, 1000W, with nower & SWR spenzs, VK,3MW, OTHE, Ph;103) 560 5276. BENCHER OR BROWN BROTHERS PADDLE: Player contact

Gooff VK3CGH, OTHR, Ph: 101) 288 6019 COPY OF 0-15V BENCH POWER SUPPLY: from April 1962 seese of "RTVH" (precurer of Herpines, Physiol) 596 2414 Electronic

YARSU FLIDE LINEAR AMP: for use with FT? see. Eing with price and details to Ross VK3CBL. Ph: [03] 236 2073. #FOR SALE - ACT #

DECEASED EQUIPMENT — VK/XX: Kenmood TS-510 exc inate modell; Drake TR-6C exe: Drake AC4 power supply: The CO-195A coellocupe: Kenmin electronic keyer, model EE-150; Tollyo Hy-Power Lisb, universal antenna couples, model EE-190 3.5—28MHz. Offens to Mrs G Donqian, Ph;(62) 32 2623.

TELEPRINTER — SIEMENS MODEL 100: complete with taper reader, tape reperfectors, built-in loop supply, circuit diagrams drapase paper tape. EC \$100. Ph; (862) 68 5354 BH or (862) 58 3464 AH.

FOR SALE - NSW

HAL VIDEO COMMS TERMINAL — MODEL DSR-2050 KSR: For RTTY & CW. complete with menins, model 15 mbeprinter, & service manunla. 8650. System 60, bloe label computer with software & manuals. \$300. Dual beam oscillusope. Teknocia: type 541 with manuals, care oor warking. \$59. Pear VKZCZA. OTHIR. Rh:102 (34) 2672. ICOM IC-GE: 78cm h/beld & standard equip (in box), & 12V PSU & 240V PSU (work from mains), & putter grip aut, with table and whip, \$350. Colin VK2/CD/cnFIJ. Ph; (02) 450 450 AH.

KENWOOD TR-2509: 2m h/held nrv, complete with belical ass, 2469 50Hz charget myr manusl, oog packing, 2250. Other across sund — SRC-25; pagkraine; 422; PB-25 spare but pack, 430. BF-1 AA butt case. 310. MF-1 mobile mag case inc 219° charges, 550. Jesther case. 350. Service manual, \$10. Launic WEA/QW, QTHER. Hr.[021] 538 5505 BH or \$0.27 505

EENWOOD TET200G 2 NETTE TCVE: 1W/10W, channels 1-8, plus 40, 50, 51, \$145 ONO. Hygain 2048A, 4cl, 20m bean, \$250 ONO. Hasss FT-103 rev, macust, mic, in fair cond. \$250 ONO. Ababit Rf drut line 1444-430 west meets. w \$65. Ph:(02) 467 1784. KENWOOD TS-128V: Ideal navice rig. in very good con-dition. \$375 ONO. VK2AXS. Ph:(02) \$20 2828 AH.

KENWOOD TS-520: Good condition. \$375. HC-500 and tomer. \$75. Yaern RSM-3 preter monate. \$25. RSE 2A 2m stub. \$10. RSL 5500th 80m remaints: \$25. RSE7A, 40m resonater. \$25. Martin VEZBM-1. Phc(bC2) 67 385. KENWOOD TSASES TCVR WITH MANUAL: 3 extra raises & packing, \$350. Swan TBA beam ane. \$155. CDE HAM II de oxtono, with control. \$154. Assensas most with cable 150 hight, \$150. Adigsway PM2H power/SWR meses \$65. Zephyr 21ZA mic is uper handqineer. \$155. Pm287 7758.

YAESU 981DM HF TX: with FM, ext VFO, 2020 scan, 40 stems, 2020 CW chip, 240/12V ext spkx, desh & hand mics, manuals, extender bound, orig phg. \$650 ONO. Ben VKZDBEL Ph. (1665) 54 2025.

FOR SALE -- VIC# FT-250R 2M TCVR: 10/25W output, 10 mems, 2 VFOs 5/10 steps, priority chan, suto scan mir. Complese with mir & matual. \$335. Little use, at new. VK3AIT. Ph;[059] 41 1248. ICOM IC-582 H/HELD 6M SSB TCVR: Cover 52-56MHz. E cond. \$150. Also 6m, 4el beam. \$50. Bob VK;IZBB, QTHI Ph: (83) 379-4242.

RENWOOD T59305: in VGC with oute raner, WARC bands, & h7held mic. \$4650. Receses SAY-103, near new. \$210. Jim VK3NR. Ph-(03) 367 6920.

MARCONI TE-867 STANDARD SIG GEN: 15kHz to 32MHz in II hands. GC. \$150. VHF Sig gen type AN/USM-44. 10-428MHz in 5 bands. GC. \$250. Both above instruments are professional grade, with hybooks. Hepshuper, Ps-1033 596 2414. REALISTIC DX-500 COMMS RX: Digi read-out, in GC. \$230. Rose VK3CRL Ph:(03) 836 9073.

SHACK CLEARANCE Yacus FI-101E ccr. GC. \$420. Yacus FY-10B crt YFO. \$80. Yacus FL-2100B lin aug., \$400. Please contact Paul VK3AJJ. Ph:(03) 435 3643 AH or (03) 267 3390 http://dx.doi.org/10.1007/stable-

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